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ANALYSIS AND COST OF READY-TO-SERVE FOODS

AN INTRODUCTION BY

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Very early in his scientific career, in the year 1877, Atwater turned his attention to the question of the nutrition of the people. The many valuable bulletins published by the United States Department of Agriculture testify to much splendid study into the problems of food for the multitude. And yet little practical use has come of it all. Why then talk about nutrition? A critic writes, "We need food, but do we need books to remind us of our need? And as an unanswerable challenge another critic cries, "Does Professor X eat his own diet?" It is truly stated that normal nutrition is associated with appetite, and it is therefore argued that the appetite is not to be controlled by knowledge. One has only to recall the appetite for drink to realize the utter fallacy of this argument. A glass of beer or a glass of wine taken at the end of a wearisome day is not of demonstrable evil and may be of benefit to the digestion. Yet to follow the appetite when it leads to drink in excess is of injury to the body, the mind and the economic welfare of the individual and therefore inimical to the welfare of the state.

But why repeat such self-evident truths? Has not enough been said? Are not words wasted in repetition of the obvious? In defense one may recall a scene at the New York Academy of Medicine in which Sir William Osler maintained that the essence of successful teaching consisted in "Reiteration, reiteration, reiteration." One of the audience present qualified this definition by adding the words, "without irritation." If successful teaching be accepted as "reiteration without irritation," let the following presentation be an attempt in that direction.

Food has been defined as a well-tasting mixture of foodstuffs of such a composition that the body is not injured by its use, and of sufficient quantity to maintain the body in good condition.

One may consider this definition under three headings.

1. Value of flavor.
2. Importance of composition.
3. Importance of quantity.

VALUE OF FLAVOR

It is known to all that the sight of appetizing food "makes the mouth water." It is known, however, to comparatively few that the sight of such food "makes the stomach water" in the same sense. That is to say, a flow of gastric juice is set up in the stomach. This flow is accelerated by the actual taste of the food, so that a large amount of valuable digestive fluid is set to flowing merely through the psychic appreciation of flavor. When food is taken without appetite, this important preliminary flow of gastric juice does not take place and proper digestion is rendered more difficult. Not only this, but the glands lying deeper down in the intestines yield their digestive juices in larger measure, the greater the quantity of gastric juice which passes from the stomach into the intestine. The appetite is like a magic wand influencing the whole of the digestive process. Fear and anger lead to a parched throat, and in an entirely similar manner to a parched stomach, so that food cannot be well digested under these circumstances. It is familiar to all that the sight, smell or sound of anything repellant will cause loss of appetite. The writer has seen an artist faint when an operation of Dr. Carrel became the subject of a dinner conversation where men and women were present. The appetite is favored by the extraneous refinements of civilized life, such as a spotless table cloth. It would also be affected by the cleanliness of the preparation of the food could one always look behind the scenes. It is affected by the atmosphere of cheer at the table. Neither scolding parents nor snarling children facilitate the digestion of the Christmas dinner.

The question of flavor in all its ramifications is therefore a very important one. It is one of the pitfalls of the prescribing physician, because he is very likely to believe that what he likes is excellent and what he detests is bad. The great multitude of people like pickles, but some do not; the latter class must not argue that pickles are therefore injurious. The common foods of life, such as potatoes, tomatoes, and bananas, all have their personal enemies based on dietetic prejudices which are largely imaginary, although as a psychosis the manifestations of repulsion are very real.

IMPORTANCE OF COMPOSITION

A celebrated school mistress once asked that a book be written which would tell her what apple sauce was without introducing the terms protein, carbohydrate and fat. Alas, that is impossible. It would be like teaching architecture without mentioning brick, granite and marble!

But the knowledge is not recondite. Protein is the characteristic solid constituent of muscle. The protein framework is essential for the manifestation of those properties whose aggregate is called life. And besides this, water and salts enter into the organization of the living particles. These salts are as varied as are those of the sea water and they are essential to living things. In vertebrates, salts are further used to build the larger framework of the bones. When *various molecules of protein are united in a certain* definite order with water and salts, life is possible. If the definite order is disturbed, death results. Life depends on the arrangement of the particles. One *recalls the story of the Yankee who, during the win*ter months, sold a "sure cure for potato bugs" with the caution "not to be opened till wanted for use" and with the promise of instructions for use inside the package. In the summer time, on opening the package the farmer found two small cubes with the directions "place the potato bug on one cube and press *firmly with the other." Death not only takes place* through such disarrangement of the particles, but also it may follow on the influence of a poison which pre*vents the proper functioning of the living thing.*

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* This is the introductory to a report of an investigation of the ready-to-serve foods in the Childs restaurants of New York, by F. C. Gephart, Chemist of the Russell Sage Institute of Pathology, in affiliation with the Second Medical Division of Bellevue Hospital. The complete report, in book form, with Professor Lusk's introduction, may be obtained of the American Medical Association, price, ten cents; postage two cents extra.

A peculiarity of living tissue is that a part of its protein is constantly being broken down and replaced by repairing material. It is as if structural units were *constantly being dissolved out of a building and auto*matically replaced by new ones. In the human body about two and one-half parts out of a thousand of its protein are thus daily renewed. It is as if one structural unit out of every four hundred in a building were replaced with a new one every day. For this *reason one must eat protein.* This is repair protein to replace that lost in the wear and tear on the machinery of the cells.

Protein is the essential constituent of all meats, fish and eggs; it is a large constituent of milk, and mixed with fat is the essential constituent of cheese. Protein is not a simple chemical substance, but it may be broken into seventeen different fragments. This is what happens when protein is digested in the stomach and intestines. These fragments are absorbed by the *circulating blood and when they are carried to the* different tissues the fragments are put together in a manner which is characteristic for each tissue. Suppose each structural unit in a building were made up of seventeen parts, all of them different, such as gold, silver, iron, lead, tin and so on, and when one of these larger structural units went into the scrap heap suppose there were always present a supply of all the several varieties of new parts necessary to build another like it; then one has an analogy of what happens. *One might imagine that these seventeen differ*ent units might be arranged in different ways, depending on the use to which the particular structural unit was put. In like manner, it comes to pass that the protein of milk is split into fragments in the baby's stomach and these various fragments are absorbed by the blood and are carried by this medium to the different organs of the baby's body, there to build up the structure of each particular organ after its own particular way. The seventeen different chemical units known to occur in protein may be joined together in different ways so that 350 million times a million different combinations are possible even though only a single representative of each unit is used (Abderhalden). In this they resemble the multiplicity of combinations possible with the letters of the alphabet. On account of this it is possible to build liver protein or muscle protein out of milk protein. In the muscles of fish and in the white of egg there are again other *variations in the order of those letters of the* protein alphabet, and therefore, these proteins are distinctive. These proteins contain all the seventeen units and are therefore capable of repairing any tissue. It has been *suggested that such proteins be called* proteins of Grade A.

Proteins are also found in all vegetable foods. The vegetables contain some complete proteins, that is, *those which have the full array of seventeen individual* units, but they also contain some incomplete proteins, *that is, those which are deficient in one or more of* the characteristic units which are necessary to build *up animal protein. These incomplete proteins have* little or no value in nutrition. Thus it comes about that it requires a much larger quantity of vegetable proteins (which include complete and deficient proteins) *to maintain the machinery of the body in repair,* *than when animal protein is given in the form of meat,* eggs, fish, milk or cheese.

It must be remembered, however, that when a person is engaged in active labor or excessive exercise he may be able to obtain a very liberal supply of proteins of the higher grade in the large quantity of vegetable foods of which he partakes. This gives a scientific explanation to the saying which has become proverbial, "the railways of the country have been built on beans."

Attention is called to the generally overlooked value of milk protein.

There is no danger of protein undernutrition in this country. The general trend is toward protein extravagance, that is, its ingestion and destruction in excess of the needs of repairing the tissues. This is due to the fact that to most normal men a beefsteak represents the choicest of good things. Here appetite triumphs over reason and economy. If one listens attentively one hears again a rumbling note, "Would Professor X eat his own diet?"

Yet the matter of enormous meat consumption is one of serious economic importance which is not to *be lightly tossed aside. The following table prepared* by Rubner indicates the quantity of meat consumed per head of population (adults and children) in the various nations of Europe and also the increase in the consumption of meat in Germany during the last hundred years.

TABLE 1.—RUBNER'S TABLE OF MEAT CONSUMPTION IN EUROPE

	Present Consumption of Meat Per Capita Per Year, Pounds	Consumption of Meat in Germany in Different Years	
		Date	Pounds
Germany	115	1912	115
England	105	1900	102
France	74		
Belgium and Holland	75	1892	72
Austria-Hungary	64	1873	65
Russia	59	1840	48
Italy	23	1816	30

There is little doubt that excessive consumption of meat constitutes a grave and unnecessary economic waste. The increased cost of food falls most heavily on this item of indulgence and its ever-increasing price follows as much the law of supply and demand as does the price of champagne, and, for the same reason, the price of flavor for those who have the price. It is part of the spirit that demands the motor car, the luxuries of life as well as its necessities.

As regards the utility of carbohydrate and fat in the food, one may especially attribute to them a value as fuel. They are oxidized in the body and keep the body warm and when work is accomplished they furnish the energy with which to perform it.

The carbohydrates consist in sugars and starches. The latter are convertible into sugars in intestinal digestion. One can speak of cornstarch as equivalent to the sugar into which it is convertible. Cane sugar has essentially the same value in nutrition as starch. The two belong to the same group and yet are not identical, and so the layman must learn the cumbersome term carbohydrate as the common name for the physiologically identical sugars and starches.

The great staple starchy foods include rice, potatoes, bread, beans, macaroni and corn. These are the cheapest food fuels. They all contain protein but their principal constituent is starch, which when converted into sugar is as much a fuel for the body as gasoline is for the automobile.

Fat is taken in the food with most meats. It is largely consumed as lard and also as butter. Nuts contain 50 per cent. of their weight as fat. The fats are a far more costly fuel than the carbohydrates, although they serve a similar purpose in nutrition. The advantage of taking a diet which includes a mixture of carbohydrates and fats lies in the fact that the intestine is not called to excessive effort in caring for the digestion and absorption of a large quantity of a single food material, and that equivalent amounts of fat are less bulky than carbohydrates. The disadvantages of a large use of fat are, first, its original cost, and, second, the fact that its ingestion diminishes the intake of vegetables and hence the amount of cheap vegetable proteins, thereby making fat indirectly a still more expensive food.

There are important accessory factors to be discussed concerning food. These are the fibrous roughage of cellulose, the salts of the diet and the so-called vitamins.

Sylvester Graham used unbolted wheat flour with which to make Graham bread. The cellulose here produces a freer movement of the bowels. Of similar import is the use of spinach, cauliflower, lettuce, cabbage, asparagus and tomatoes. These substances have almost no fuel value, but they can be prepared to serve with large quantities of fats or oils, and they furthermore give flavor and variety to the fare of the table.

The salts of the food are extremely important. Thus, if calcium be withheld from the diet of experimental animals the bones become porous and finally break. Such conditions are not found in human life, for the foods ingested always contain sufficient salts to replace those lost from the body. It has been found that when meats are oxidized they yield an acid ash, whereas vegetables usually yield an alkaline ash. It has been recently shown by Blatherwick that of all vegetables potatoes yield the greatest amount of alkaline ash for the use of the body, and that this alkali is most effective in dissolving and eliminating uric acid from the system. In the light of this, potatoes are highly desirable, not only in health, but also in the gouty condition. Yet one of the dietetic fads of the day is to eliminate potatoes from the bill of fare, a really absurd practice, always excepting the cases of those individuals who manifest personal repugnance to potatoes.

Finally, there is a class of substances which exists in minute quantities in some foods and little or not at all in others. This class is called that of the vitamins. Thus, individuals who live almost exclusively on polished rice acquire the disease of beriberi, and a similar monotonous diet of bread develops scurvy. A diet of bread and water does not maintain the strength of the organism and has been used as a disciplinary method. Minute quantities of vitamins are found, for example, in meat, in butter and in unpolished rice, but they are absent or deficient in polished rice, bread and lard. The vitamins are absolutely necessary for the proper harmonious maintenance and growth of the body. This statement should cause no alarm. There is no beriberi in the United States, for here rice does not ever form the dietary mainstay of the individual. There is practically no scurvy, although it has been known to occur in almshouses, where motives either of economy or graft have deprived the inmates of suitable food.

Summarizing, one can state that in the United States there is no protein, or salt or vitamin deficiency in the habitual diet, and there is plenty of roughage in the form of cabbage, sauerkraut or other vegetable foods available to him who desires it.

THE QUANTITY OF FOOD

Generally speaking, the mass of food ingested serves two functions, the protein is of use in the maintenance and repair of the cell machinery, and the carbohydrate and fat furnish fuel to this machinery that the motions of life may continue. Protein given in excess also serves the purpose of fuel, as do carbohydrates and fat. In the oxidative destruction of these materials in the body heat is liberated. When 1 gram of fat is burned sufficient heat is produced to raise the temperature of 1 liter of water 9.3° C. (= 16.5° F.). Since the unit of heat measurement or the *calory* is that quantity of heat required to raise 1 liter of water 1° C., it follows that 9.3 calories of heat are set free whenever 1 gram of fat is oxidized. The heat liberated in the body when 1 gram of fat is oxidized is exactly the same as when it burns outside the body. The similar value for starch is 4.1 calories per gram. In the case of protein, 4.1 calories are liberated whenever a gram of this material is oxidized within the organism. When, therefore, protein is consumed in excess, the excess has no greater fuel value than an equal weight of starch. Here then are the fuel resources which keep the body warm, maintain the heart and respiration, and the activity of the other organs, and enable the muscles to perform work. Since every machine requires more fuel when it is active than when it is at rest, it follows that the greater the activity of the body the greater will be the requirement for fuel.

The figures in Table 2 may be accepted as estimates of the fuel requirement of a man weighing 156 pounds (70 kilograms) during a twenty-four-hour period:[1]

TABLE 2.—DAILY CALORIC REQUIREMENTS OF 156 POUND (70 K.) MAN

	Calories
Absolute rest in bed without food	1,680
Absolute rest in bed with food	1,840
Rest in bed 8 hours, sitting in a chair 16 hours, with food	2,168
Rest in bed 8 hours, sitting in a chair 14 hours, walking two hours, with food	2,488
Rest in bed 8 hours, sitting in a chair 14 hours, vigorous exercise 2 hours, with food	2,982

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[1] Lusk: The Fundamental Basis of Nutrition, Yale University Press, 1914.

It appears from this that that great class of human beings whose business it is to sit at their desks or to watch machinery, and who may walk to and from their work, require 2,500 calories. In their class are included writers, draughtsmen, tailors, physicians and other professional men, clerks, accountants, etc. Mental effort is accomplished without any increase in the quantity of energy required.

Individuals who stand at their work, such as bakers, dentists, car conductors, decorators and glass workers, require about 3,000 calories. If muscular labor be constant, more is required. Thus carpenters making tables and painters painting furniture require 3,300 calories. Farmers require 3,500 calories, stone masons 4,500, lumbermen 5,000 and over, and a man riding in a bicycle race during twenty-three hours requires 10,000 calories a day.

These are facts which at the present time are scarcely open to dispute. The sorrowful part of it is that outside a narrow circle they are practically unknown. Physicians sometimes starve their patients and the babies entrusted to their care, in blissful and childlike ignorance of what they are doing. The poor, 50 to 60 per cent. of whose income is spent for food, waste their money in the purchase of beautiful labels or relatively expensive and unnutritious foods. A publisher employing several thousand individuals says that his employees buy from choice the products advertised in his magazines. Children of the poor are sent to buy food for the family and the whole expenditure of half the family's income is effected in an atmosphere of unfathomable ignorance. Yet if one seeks to help, one is informed that one must not meddle with the appetites, and the funny man of the newspaper makes a witticism on the subject of "highbrow" information.

In spite of the inevitable attitude of the humorous editor, it is well to remember the severity of the winter's cold, the lack of employment, the suffering of the poor, which create a situation very far from humorous.

How can relief be given? One suggestion is to sell 1,000 calories of food in a well-balanced ration as cheaply as possible. Beans are cheap. But you don't like beans. Does Professor X eat his own diet? If beans are not acceptable, then how about macaroni and spaghetti? The meal shown in Table 3 is made up of 1,000 calories and contains 16 per cent. of those calories in protein, one-sixth of the protein being in the form of animal proteins of Grade A, and the rest being in vegetable proteins. The remaining 84 per cent. of the calories are nearly equally divided between carbohydrate and fat.

TABLE 3.—COMPOSITION OF A RATION CONTAINING 1,000 CALORIES

	Ounces	Calories
Cooked beans	7⅜	400
Pork	1	234
Bread	2⅓	180
Butter	½	103
Milk	5	100
Coffee	5	...
Total		1,017

The actual cost price of this meal of hot pork and beans, bread and butter and a cup of hot coffee and milk is 4¼ cents, excluding labor and rent, but including the coal used. The 2,500 calories required to maintain a man out of work on this diet would cost

TABLE 4.—THE COST OF 2,500 CALORIES IN FOODS ARRANGED IN ORDER OF THEIR INCREASING PRICE

Note that when three portions furnish 2,500 calories, one portion affords a good meal. When nine portions furnish 2,500 calories, then three different portions should form the meal.

Name of Food	Nutritional Calories for Five Cents	Per Cent. in Bread and Butter	Cost of 2,500 Calories	No. of Orders to Make 2,500 Cal.
Napoleon	453.6	....	$0.28	6
Crullers	444.0	....	.28	6
Cabinet pudding and vanilla sauce	399.5	....	.31	6
Cocoanut pie	372.9	....	.34	7
*A—Roast beef sandwich with roll	357.8	....	.35	7
Bath buns	357.5	....	.35	7
Bread custard pudding	355.4	....	.35	7
Pineapple pie	347.4	....	.36	7
Corn muffins	342.2	....	.37	7
Apple pie	337.2	....	.37	7
New *England pudding with vanilla* sauce	330.7	....	.38	8
Chocolate spiced cakes	324.0	....	.39	8
Walnut layer cake with marshmallow icing	323.2	....	.39	8
Milk crackers	317.1	....	.39	8
Bread pudding with vanilla sauce	298.4	....	.42	8
Pumpkin pie	296,1	....	.42	8
A—Lamb croquettes and mashed potatoes	291.4	29.5	.43	3
Coffee cake	290.2	....	.43	9
Rhubarb pie	286.8	....	.44	9
A—German meat cakes and French fried potatoes	284.5	27.2	.44	3
Old fashioned molasses cake	281.9	....	.44	9
Lemon pie	279.7	....	.45	9
*A—Vienna roast with French fried potatoes	278.3	29.7	.45	3
Butter cakes	278.0	....	.45	9
Minced ham sandwich	277.3	63.8	.45	9
Pork and Boston beans	276.6	27.1	.45	3
Cornmeal cakes with maple cane syrup	275.2	....	.45	5
A—Ham croquettes	263.1	32.7	.47	5
Cold rice pudding	263.1	....	.47	9
Ham sandwich with roll	261.8	....	.48	10
Banana layer cake	253.4	....	.49	10
*A—Creamed chipped beef on toast	249.2	....	.50	3
Cocoa	247.5	....	.50	10
*A—Roast beef cutlet with tomato sauce	246.5	38.4	.51	3
*A—*German meat cakes with lyonnaise* potatoes	246.4	....	.51	3
*A—Swiss cheese sandwich	244.0	59.6	.51	10
* —Boston baked beans	240.3	34.2	.52	5
A—*Vienna roast, spaghetti and potatoes*	236.3	34.0	.53	4
Chocolate cornstarch with cream	231.6	....	.54	11
Wheat cakes with maple cane syrup	231.1	....	.54	5
Milk crackers and milk	230.5	....	.54	5
*A—American cheese sandwich	230.2	....	.54	11
* —*New York baked beans*	229.7	35.5	.54	5
Hot corn bread	228.6	....	.55	6
*A—Country sausage	227.7	....	.55	11
Indian pudding with maple sauce	227.2	....	.55	11
*A—Minced tongue sandwich with tea *biscuits*	225.6	....	.55	11
Cream roll	225.1	....	.55	11
A—Beef cakes with brown gravy and macaroni	224.8	35.1	.56	4
* —New York beans, on the side	223.4	....	.56	11
Graham crackers	223.3	....	.56	11
A—Broiled ham	223.1	....	.56	3
A—Roast beef hash, browned	222.1	36.9	.56	4
Oyster pie	220.4	....	.57	4
*A—Minced chicken sandwich	220.3	73.0	.57	11
Apple tapioca pudding	217.2	....	.57	11
Potato salad	217.0	38.4	.58	6
Chocolate layer cake	212.4	....	.59	12
*A—Breaded veal cutlet and tomato sauce	211.9	33.0	.59	3
Egg plant fried in butter	208.7	....	.60	4
Buckwheat cakes with maple cane syrup	208.3	....	.60	6
A—Roast beef croquettes with macaroni	208.3	34.3	.60	4
A—Fried bacon with French fried potatoes	208.1	....	.60	3
A—Sardine sandwich	207.4	....	.60	12
*A—Minced ham sandwich with olives	206.8	....	.60	12
*A—Ham and New York beans	206.6	40.2	.61	4
Vanilla cornstarch with cream	206.5	....	.61	12
*A—Roast beef cutlet and mashed potatoes	205.7	38.3	.61	4
A—Lamb cutlet and mashed potatoes	205.4	36.9	.61	4
Cocoanut cake	204.6	....	.61	12
Cream cheese walnut *sandwich*	201.5	....	.62	12
* —New York baked beans with tomato sauce	201.5	34.8	.62	6
A—Ham and Boston beans	201.3	44.6	.62	4
A—Liver and onions with French fried potatoes	200.1	....	.62	3
*A—Beef stew	199.8	35.3	.63	4
*A—Pork and New York beans	198.7	38.5	.63	4
*A—Ham sandwich	198.3	73.2	.63	13
Rice croquette with bacon	196.2	43.4	.64	4
Baked apple with cream	196.0	....	.64	6

*Contains 15 per cent. *or over of heat in protein.* A contains the protein of meat, milk, eggs or cheese.

TABLE 4.—*Continued*

Name of Food	Nutritional Calories for Five Cents	Per Cent. in Bread and Butter	Cost of 2,500 Calories	No. of Orders to Make 2,500 Cal.
A—Frankfurters and potato salad	195.0	42.5	$0.64	4
* —Baked beans with macaroni	193.8	....	.64	4
Cup of coffee (containing cream and sugar)	195.2	....	.64	13
A—Mince pie	194.1	....	.64	6
*A—Lamb stew	193.6	39.6	.65	4
*A—Broiled salt mackerel with mashed potatoes	192.2	44.1	.65	3
Cherry pie	191.5	....	.65	7
Pound cake	191.5	....	.65	7
A—Chicken cutlet and mashed potatoes	191.2	57.6	.65	4
*A—Shredded wheat and milk	190.8	....	.66	7
Cream tapioca pudding	189.6	....	.66	13
Soda crackers and milk	188.6	....	.66	7
Strawberry pie	188.0	....	.66	7
Chocolate eclair	188.0	....	.67	13
*A—Baked lamb pie (individual)	187.7	40.6	.67	4
*A—Corned beef sandwich	186.0	79.1	.67	13
A—Broiled bacon	185.3	34.3	.67	3
Rice cakes with maple cane syrup	185.6	....	.67	4
A—Cold ham	183.5	39.6	.68	5
A—Roast beef croquettes and spaghetti	183.0	....	.68	5
*A—Chipped beef and scrambled egg	182.7	36.4	.68	3
A—Minced ham with scrambled eggs	181.9	35.5	.69	3
Peach pie	181.8	....	.69	7
A—Baked macaroni and cheese	181.6	40.5	.69	7
Huckleberry pie	179.7	....	.70	7
French toast with maple cane syrup	179.2	....	.70	4
*A—Corned beef and New York beans	179.1	....	.70	5
Blackberry pie	177.9	....	.70	7
*A—Veal pot pie with dumplings	174.9	47.9	.71	5
*A—Creamed codfish on toast	174.7	46.3	.72	5
A—Vienna roast with stewed tomatoes	174.7	31.3	.72	5
*A—Tomato omelet	174.4	55.3	.72	4
A—Small oyster fry	174.2	36.6	.72	4
Hot rice with cream	173.3	....	.72	5
A—Plain oyster fry with bacon	171.8	32.0	.73	4
*A—Hamburger steak	170.5	29.9	.73	4
A—Corned beef hash, browned in pan	170.3	46.1	.73	5
A—Corned beef hash, steamed	169.3	55.8	.74	5
Cream	168.7	....	.74	5
*A—Chicken wings on toast	168.2	39.2	.74	4
A—Country sausage and French fried potatoes	167.2	....	.75	5
*A—Corned beef and Boston beans	166.7	48.6	.75	5
*A—Two fried eggs	166.0	59.1	.75	5
*A—Ham omelet	165.6	35.5	.75	4
*A—Plain omelet	165.5	47.2	.75	5
*A—Fried liver and mashed potatoes	164.8	51.7	.76	5
*A—Creamed chipped beef	163.7	51.7	.76	5
A—Large oyster fry	161.8	35.1	.77	3
Apple fritters with fruit sauce	161.7	....	.77	8
A—Fish cakes with tomato sauce	161.2	54.4	.78	5
French fried potatoes, extra order	160.4	....	.78	8
Chocolate cornstarch with whipped cream	159.6	....	.78	16
Shredded wheat and cream	159.5	....	.78	6
A—Chicken croquette and French fried potatoes	159.3	....	.78	5
*A—Corned beef hash with poached egg	158.9	35.5	.79	4
*A—Ham and eggs	158.3	20.8	.79	3
A—Ham and potato salad	158.1	31.1	.79	4
*A—Baked shad and dressing	157.7	....	.79	4
*A—Hamburger steak with Spanish sauce	157.4	33.7	.79	4
Charlotte russe	156.5	....	.80	16
*A—Creamed eggs on toast	155.6	37.6	.80	4
A—Bacon and eggs	155.3	29.8	.81	3
Strawberry fruit jelly with whipped cream	154.9	....	.81	16
*A—Buckwheat cakes with country sausage	154.7	....	.81	4
A—Oyster sandwich	153.8	46.3	.81	8
*A—Chicken giblets on toast	153.0	41.5	.82	4
Hot rice with butter	152.6	....	.82	8
Pimento olive cheese sandwich	152.3	87.0	.82	16
*A—Liver and bacon with lyonnaise potatoes	151.0	29.7	.83	3
*A—Corned beef hash, browned, with two poached eggs	150.1	37.7	.83	3
Buttered toast	149.7	....	.83	8
*A—Liver and bacon	149.4	36.4	.84	3
*A—Chicken hash	146.9	46.3	.85	6
A—Two scrambled eggs	146.3	52.6	.85	6
*A—Milk	145.3	....	.86	9
Apple sauce with whipped cream	144.2	....	.87	17
Hot rice with poached egg	143.3	49.8	.87	6
*A—Corned beef with potato salad	143.1	53.1	.87	6
Fish cakes with poached egg	141.8	53.2	.88	4
*A—Cold roast beef	140.1	63.4	.89	6
A—Hot rice with milk	139.6	....	.90	9
*A—Small steak	138.0	28.3	.91	3
Baked apple	136.8	....	.91	18
Baked apple with ice cream	136.0	....	.92	9
A—Two lamb chops	135.3	....	.92	3
A—Chicken salad sandwich	134.7	....	.93	9
*A—Corned beef hash, steamed, with poached egg	133.8	44.3	.93	5
* —Boston beans on side	133.7	....	.94	19
Tomato sandwich	133.6	96.5	.94	19
A—Lamb chops, breaded, with mashed potatoes	132.7	48.6	.94	5
*A—Maple flakes with milk	132.6	....	$0.94	9
*A—Corned beef	132.4	45.8	.94	6
*A—Bulgarzoon	132.1	....	.95	10
A—Spanish omelet with French fried potatoes	132.1	39.8	.95	4
Baked apple custard with whipped cream	131.5	....	.95	10
Boiled rice, side order	130.8	....	.96	10
*A—Fried egg sandwich	129.6	64.7	.96	10
*A—Onion omelet	129.1	27.0	.97	5
*A—Baked weak fish with dressing	128.9	45.0	.97	5
*A—Sirloin steak	128.1	20.1	.98	2
Fresh cooked oatmeal with cream	127.7	....	.98	6
*A—Fish cakes with macaroni	126.9	....	.99	5
Sliced bananas with cream	126.2	....	.99	10
* —Macaroni, side order	125.8	....	.99	20
*A—Roast sirloin of beef and mashed potatoes	124.9	44.8	1.00	5
A—Tomato omelet with potatoes	121.9	42.9	1.03	4
*A—Two boiled eggs	121.6	....	1.03	7
*A—Fish cakes with spaghetti	120.6	51.0	1.04	5
*A—Macaroni omelet and tomato sauce	119.1	38.5	1.05	4
*A—Small steak with onions	118.3	25.8	1.06	3
*A—Fish cake sandwich	117.8	....	1.06	11
*A—Egg salad	116.0	54.9	1.08	5
*A—Parsley omelet	115.2	53.1	1.09	5
Green split pea soup	114.1	59.4	1.10	11
Vanilla ice cream	113.8	....	1.10	11
*A—Tenderloin steak with onions	113.3	24.5	1.10	2
*A—Cornflakes and milk	111.1	....	1.12	11
Strawberry tart	111.0	....	1.13	11
*A—Tuna fish salad	110.9	43.0	1.13	5
*A—Sirloin steak with onions	110.0	20.1	1.14	2
Pineapple fruit jelly with whipped cream	109.8	....	1.14	23
*A—Cup custard	109.5	....	1.14	11
*A—Roast beef with potato salad	107.4	43.9	1.16	5
*A—Tenderloin steak	106.3	19.8	1.18	2
A—Milk toast	105.6	....	1.18	8
Strawberry cornstarch with whipped cream	102.2	....	1.22	24
Strawberry ice cream	102.1	....	1.22	12
*A—Clam chowder	100.6	....	1.24	6
* —Chicken soup	100.4	49.5	1.24	8
*A—Crab meat salad	99.5	68.1	1.26	6
Vegetable soup	98.1	70.6	1.27	13
Stewed rhubarb	93.9	....	1.33	27
*A—Creamed chicken on toast	92.0	37.5	1.35	7
Strawberries with cream	91.9	....	1.36	9
Strawberry short cake	91.8	....	1.36	9
*A—Chicken omelet	90.8	32.1	1.38	6
*A—Deviled crab	90.7	64.1	1.38	7
Sliced bananas	89.9	....	1.39	28
*A—Spaghetti and cheese	88.0	....	1.42	14
*A—Fried ham	86.8	49.6	1.44	6
A—Minced chicken sandwich with lettuce	86.3	....	1.45	15
* —Bean soup with croutons	84.4	....	1.48	15
*A—Hot roast beef sandwich	81.5	....	1.53	10
*A—Club sandwich	81.4	....	1.54	6
*A—Sliced chicken sandwich	78.1	....	1.60	16
*A—Poached eggs on toast	65.6	....	1.91	10
Strawberries with ice cream	65.0	....	1.92	13
* —Cream of wheat	63.0	....	1.98	20
Blackberries and cream	56.5	....	2.21	22
Stewed corn	52.5	....	2.38	48
* —Creamed asparagus on toast	49.2	....	2.54	13
Watermelon	39.4	....	3.17	20
* —Tomato soup with rice	36.6	....	3.42	34
Sliced pineapple	35.3	....	3.54	71
Grape fruit	25.8	....	4.85	32
*A—Raw oysters	18.6	....	6.72	45
Sliced tomatoes with lettuce	16.6	....	7.53	50
* —Sliced tomatoes	15.2	....	8.20	82
Tomatoes and lettuce with dressing	13.5	....	9.26	47
Cantaloupe	12.1	....	10.33	69
Champagne†	8.6	....	14.53	7

† Not purchased in the restaurant.

10.6 cents a day, or $38.70 a year. If such a thing as a "submerged tenth" really exists in this country it would cost $387,000,000 to feed 10,000,000 men for one year on this diet. The taxation in the United States, city, state and national, is said to be $4,000,000,000 annually. Ten per cent. of this sum would feed with pork and beans, bread and butter, coffee and milk, 10,000,000 men who are out of work. A similar menu just as cheap can be based on spaghetti flavored with tomato or cheese. It is not argued that a diet based on the cheaper foods is a panacea for all the woes of the world. It is not argued that such diets are the equivalent of caviar, champagne and canvas back ducks, but it is argued that good wholesome simple food should be more available for mankind at a moderate price in hours of adversity and distress than is the case to-day. People should know how they can conserve their resources without detriment to their bodily welfare.

Passing to the consideration of the nutrition of the great mass of the people it seems probable that at the present time no more valuable data can be obtained than those which may be derived from a study of the various food portions solds by the Childs restaurant establishments which are situated in many cities throughout the country. The portions served are standardized, i. e., planned to be uniform in quantity and quality and the prices are the same in all the restaurants. Mr. F. C. Gephart has completed a notable analysis of 350 different portions as they are sold to guests at these establishments. The results of these analyses have been tabulated. Table 4 gives the cost of each food if that particular variety were alone made to furnish the 2,500 calories necessary for a man leading a sedentary life, to which is added the restaurant price of these 2,500 calories and the number of portions necessary to furnish them. Portions which contain 15 per cent. of protein calories or more have received a star. Portions which contain meat, fish, egg or milk proteins are preceded with the letter A, indicating the presence of animal proteins. The material in this table is arranged in the order of the increasing price of the food.

It appears that fourteen different orders yield enough food fuel for one day at a cost of less than 40 cents, or less than $145 per annum. Of these the roast beef sandwich made as a roll is conspicuous for cheapness.

Thirty-three different portions may yield the total energy requirement of 2,500 calories at a cost of less than 50 cents per day.

Suppose a restaurant be established with these thirty-three varieties only, and the consumer arranged his dietary so that he paid an average price of 40 cents for 2,500 calories, it would cost him $145 per annum for his food. If it be a fair division of one's income to expend one-fourth for rent, one-fourth for clothes, one-fourth for food and one-fourth for extras, then a single man may live at a Childs restaurant when his income is $50 a month, of which he spends $12.50 for food if he restricts himself to those thirty-three varieties. As a married man he would require $100 a month to maintain himself and his wife under similar circumstances.

Passing to food of a higher cost, it appears that thirty-two portions yield 2,500 calories at a cost of between 51 and 60 cents and here portions containing meat predominate.

There are forty-two varieties of foods which yield 2,500 calories between 61 and 70 cents and thirty-three which cost between 71 and 80 cents. At this latter level of cost orders for eggs such as fried eggs and creamed eggs on toast begin to appear.

Twenty varieties yield 2,500 calories at a cost of between 81 and 90 cents and twenty-four varieties cost between 91 cents and $1.00. The sirloin steak appears at the level of 91 cents.

This gives a choice of 184 dishes which yield 2,500 calories at a maximum daily cost of $1.00.

There are fifty-five varieties of food which cost more than $1.00 per 2,500 calories. The cost rises rapidly. Seven orders of two boiled eggs (with but-

TABLE 5.—SELECTED MENUS

	Cost, Cents	Calories
MONDAY		
Breakfast:		
Coffee (with milk and sugar)	5	195
Hot corn muffins	5	453
Lunch:		
*A—Roast beef sandwich and roll	5	357
Crullers	5	444
Dinner:		
*A—*Vienna roast, fried potatoes, bread and butter*	15	834
Cocoanut pie	5	372
Total	40	2,655
TUESDAY		
Breakfast:		
Coffee (with milk and sugar)	5	195
*A—Chipped beef and scrambled eggs	20	728
Lunch:		
*A—Roast beef cutlet, tomato sauce, fried potatoes, bread and butter	15	738
Dinner:		
A—Lamb croquettes and mashed potatoes, bread and butter	15	874
Apple pie	5	177
Total	60	2,712
WEDNESDAY		
Breakfast:		
Coffee (with milk and sugar)	5	195
Boston pork and beans, bread and butter	10	480
Butter cakes	5	278
Lunch:		
*A—German meat cakes with lyonnaise potatoes, bread and butter	15	738
Dinner:		
A—Roast beef hash, browned, bread and butter	15	666
Pumpkin pie	5	296
Total	55	2,453
THURSDAY		
Breakfast:		
Coffee (with milk and sugar)	5	195
Bath buns	5	357
*A—Country sausage	5	257
Lunch:		
A—Vienna roast, spaghetti, potatoes, bread and butter	15	708
A—Swiss cheese sandwich	5	244
Dinner:		
A—Roast beef croquettes, macaroni, mashed potatoes and bread and butter	15	624
Cold rice pudding	5	263
Total	55	2,648
FRIDAY		
Breakfast:		
Coffee (with milk and sugar)	5	195
A—Broiled ham with bread and potatoes	20	892
Lunch:		
A—Beef cakes, brown gravy and macaroni	15	774
Dinner:		
A—Ham croquettes with mashed potatoes	10	526
Napoleon	5	453
Total	55	2,840
SATURDAY		
Breakfast:		
Coffee (with milk and sugar)	5	195
Corn meal cakes and maple syrup	10	550
Lunch:		
A—Roast beef hash (browned), bread and butter	15	666
Cup of cocoa	5	247
Dinner:		
*A—Roast beef cutlet and mashed potatoes, bread and butter	15	617
Bread custard pudding	5	355
Total	55	2,630
SUNDAY		
Breakfast:		
Coffee (with milk and sugar)	5	195
*A—Creamed chipped beef on toast, rolls and butter	15	747
Dinner:		
*A—Breaded veal cutlet, tomato sauce, potatoes, bread and butter	20	847
Mince pie	10	388
Supper:		
Oyster pie	15	660
Cabinet pudding and vanilla sauce	5	399
Total	70	3,236

TABLE 5.—*Continued*

SUMMARY	Cost in Cents	Cal-ories
Monday	40	2,655
Tuesday	60	2,712
Wednesday	55	2,453
Thursday	55	2,618
Friday	55	2,810
Saturday	55	2,630
Sunday	70	3,236
Per week	$ 3.90	19,174
Per diem	0.56	2,739
Per month	16.80	

Individual income appropriate to this expenditure is $67.20 per month.

tered toast) costing $1.03 for 2,500 calories stand out in their extravagance, but this is outdone by nine orders of two poached eggs on toast costing $1.91 for the day's requirement. The portion of spaghetti with cheese is certainly overpriced, and were the service to an Italian clientele would not be so costly.

The greatest wonder appears in the cost of the tomato portions. Tomatoes with lettuce and dressing cost over $9.00 for 2,500 calories, nearly as much as cantaloupe at $10.00, while champagne (bought outside the restaurant at $4.00 a quart) costs $14.00 for 2,500 calories.

The mystery of tomatoes is baffling. A can of tomatoes is little else than flavored water. The popularity of the tomato probably depends on its flavor and its color. A painter wishing to sell a landscape puts a figure with a red cloak in the center. It is an ancient device. In like manner, a restaurant puts a few lettuce leaves on a plate with a red tomato in the middle, covers it with a little dressing and gets a large price. It is the work of an artist for a connoisseur.

To indicate the practical value to which this work may be put, the following selected menus have been arranged. They give the cost and caloric content of inexpensive dishes which may be ordered at the restaurant and which provide for three meals a day during a week for a man of average weight. Only the morning cup of coffee occurs more than once.

TABLE 6.—COST TABLE

Ham and Eggs, 25 Cents	Cents
2 Eggs	6.66
3½ oz. Ham	4.40
3 Slices bread	0.45
10 gm. Butter	0.89
2½ oz. Potatoes	0.04
800 calories	12.44

Bacon and Eggs, 25 Cents	Cents
2 Eggs	6.66
1 oz. Bacon	3.72
3 Slices bread	0.45
10 gm. Butter	0.89
2½ oz. Potatoes	0.04
800 calories	11.76

Plain Omelet, 15 Cents	Cents
2 Eggs	6.66
3 Slices bread	0.45
10 gm. Butter	0.89
500 calories	8.00

Tenderloin Steak, 55 Cents	Cents
9½ oz. Steak	17.30
3 Slices bread	0.45
10 gm. Butter	0.89
2½ oz. Potatoes	0.04
1,300 calories	18.68

Ham Sandwich, 5 Cents	Cents
½ oz. Ham	0.70
2 Slices bread	0.30
10 gm. Butter	0.89
200 calories	1.89

At Bellevue Hospital, New York, in 1912, the cost of food from the market, that is, of uncooked food, was 25 cents daily for 3,200 calories for each person in the establishment; at the Muncipal Lodging House during 1911 the cost was 13 cents daily for 2,700 calories per person.

When one considers that Childs restaurant pays for service and for expensive ground floor rental in the busiest parts of New York City, surely food at the cost outlined above is not expensive. But this menu is laboratory made, calculated from the scientific standpoint and from the standpoint of food economics. The restaurant in question could easily give this information on its menu card. It would have immense educational influence were it to do so.

In a few selected portions Mr. Gephart has estimated the retail market value of materials entering into the portions sold and these are revealed in Table 6.

It is evident that the actual cost of these standard portions is about half to one-third their cost in the restaurant. The housewife who knows how to buy the essential ingredients, and especially how to cook them, is an economic factor of prime importance in the home. Of such stuff is the science of food economics.

Mr. Gephart's work is the first extended investigation of its kind. It would be wise if the public could be better informed regarding the caloric value of foods which it purchases. It would be of vast significance if the barrel of flour, the can of lard, the pot of beans or the package of breakfast food could be labeled with the caloric content of the particular unit of sale.

The question would not then be asked, would Professor X eat his own diet? But the individual could then ask himself, am I sufficiently well-to-do to be careless of what I spend for food? And, can I spend less with equal profit and as great satisfaction?

SCOPOLAMIN-MORPHIN TREATMENT IN LABOR

A CRITICAL ANALYSIS OF SIXTY CASES

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A series of cases under scopolamin-morphin treatment was begun January 1, this year, in the Michael Reese Maternity, on the obstetric service of Dr. Lester E. Frankenthal, and continued on the service of Dr. Frank Cary. The series terminated February 5.

All private cases, all cases that threatened to become pathologic, and all cases that came in too soon before delivery to permit of the proper administration of the drugs, were kept out of the series. The total number analyzed was sixty.

Of the four delivery rooms in the Michael Reese Maternity, each constructed with cork-lined, soundproof walls and sound-proof doors, the largest was chosen for the "twilight sleep" cases. Two nurses, both graduates with extensive obstetric experience, were especially engaged for day and night duty during the entire period of the series, and they remained constantly in the delivery room. The patients were furthermore under the continual observation of either the senior or junior intern on obstetrics, and of the day and night head nurse in charge of the maternity. All results were tabulated and the observations were constantly checked by Drs. Frankenthal, Cary and myself.

Patients in labor were sent to the third floor admitting-room where they received a tub bath (sponge bath if membranes had ruptured), shaving of the genitals, and an enema, if not too far advanced in labor; when, if suitable for the series, they were taken to the delivery room, where treatment was begun with the following indications; in multiparas, when the pains recurred every ten minutes, and in primiparas when the pains recurred every five minutes.

The drug used in the earlier cases was a tablet form of scopolamin put out by Sharp and Dohme and made by Merck; later a powder form of scopolamin by Merck and ampules of scopolamin from Hoffman-LaRoche, preserved with mannite, according to the formula of Straub of Freiburg, were employed in alternate cases.

The total dosages varied from one-eighth to one-quarter grain morphin and from two doses of 1/200 to nine doses of 1/150 and eleven doses of 1/200 grain scopolamin, hypodermically. Subdued light, smoked glasses and avoidance of unnecessary and loud talking were strictly enforced. Observations on all points brought out in the literature were taken and recorded at half-hour intervals, and oftener when necessary.

The accompanying table represents a summary of the sixty cases in two groups, primiparas and multiparas. A few of the items were analyzed in only the last twenty-one cases, and are marked "2d S."

At the close in each case a brief impression of that case was written, and these remarks are here presented verbatim in groups arranged according to the degree of success or failure.

RESULTS OF TREATMENT

NO SUCCESS, TWENTY-SIX CASES

Case 10.—Patient's memory was clear at all times. Patient was somewhat indifferent to the pains, but said that the pains were severe.

Case 13.—Slight vertigo—memory clear at all times.

Case 29.—Patient's memory clear throughout, slight flush and marked thirst being the only noticeable symptoms.

Case 32.—At no time during labor had patient the slightest cloudiness of memory, sleeping between pains.

Case 53.—Patient was delirious for several hours, doing foolish stunts and was very restless.

Case 55.—Patient was very delirious, throwing herself about in a wild manner and later required restraint.

Case 56.—Very restless—the drug increased her restlessness.

Case 58.—Very restless, and during the second stage patient was absolutely unmanageable—could not be aroused and had to have restraining sheet.

Case 61.—Treatment stopped after 5/150 grain scopolamin and 2/8 grain morphin because labor pains ceased. Patient also vomited and became restless; fetal heart tones dropped to 96 and forceps were used.

Case 63.—Not much effect of the drug could be seen.

Case 66.—Patient had a mitral insufficiency and myocarditis, a supposedly ideal case for the use of the treatment. After three doses subcrepitant râles appeared in the upper left lung, the pulse became fast and irregular and the fetal head stood in deep transverse arrest. Forceps and immediate extraction were followed by a pulmonary edema, from which the patient finally recovered. The baby was born in asphyxia pallida and was resuscitated with difficulty.

Case 68.—No effect of drug noticed.

Case 3.—Patient's memory at all times was clear and no effect of the drug noticeable.

Case 9.—Patient's memory at all times was clear and very little effect of drug could be noticed. Patient had difficulty in getting the head past the outlet. Pains were strong, but no progress. "Kristeller" resulted in normal delivery.

Case 11.—Delivery rapid following a somewhat quiet period. Patient quite indifferent, apparently having little pain, but somewhat cyanotic.

Case 12.—Patient in the beginning was quiet; after the third dose became somewhat noisy and hysterical; memory was clear throughout labor.

Case 14.—Child revived with difficulty. Later condition good. Treatment did not give desired effect of drugs.

Case 19.—With heart tones at 108 from 124 after two doses, deemed it inadvisable to continue the treatment. Patient's mind was clear at all times and no effects of the treatment were noticeable.

Case 25.—Patient had no disturbance of memory.

Case 33.—Patient stopped for about four hours; after the fourth injection of scopolamin no effects of the drug were obtained.

Case 37.—Patient's memory was clear at all times.

Case 59.—Patient's memory clear throughout labor. After delivery became restless, then delirious, got out of bed and ran to window, getting onto the sill, was dragged off by the nurse, overpowered her, ran to the rear stairway, where three nurses finally succeeded in subduing her and getting her into the quiet room, where she was shackled and kept so four days, when she finally became entirely rational again.

Case 62.—Patient's memory clear throughout. Case terminated by rupture of uterus. Patient, nonipara, had three doses of scopolamin 1/200 grain, and 2/8 grain morphin. After the last dose at 1:45 a. m., pains became less frequent and stopped at 4:30 a. m. At this time the fetal heart tones could no longer be heard, and the patient gradually became semiconscious. At 6:30 she was pale, and sweat appeared on the brow. The dilated cervix was found collapsed and the presenting head had receded. Diagnosis, rupture of the uterus, seen by Drs. Frankenthal, Cary and myself, abdominal section done, fetus and placenta found free in the abdominal cavity, a jagged transverse rupture in the lower uterine segment of the uterus, running straight across the whole width anteriorly just at the level of the fundus of the bladder and a huge retroperitoneal hematoma up to the kidney. Hysterectomy was done—patient died on the second day.

Case 65.—No effect of drug noticed.

Case 67.—No effect of drug noticed.

Case 70.—No effect of drug noticed.

LITTLE SUCCESS, SEVEN CASES

Case 6.—Patient's memory seemed clear at all times, bearing down pains were very few.

Case 16.—Toward the end, patient appeared for a few seconds rather confused. Memory always clear, slightly irrational after returning to the ward, restless and required restraint.

Case 18.—Patient at no time before delivery had cloudy memory. Pain lessened toward end.

Case 20.—Labor seemed very easy, patient's memory was clear at all times.

Case 49.—With the exception of about two hours after the fourth dose, patient had clear memory throughout.

Case 69.—Patient slightly drowsy at birth, but knew of birth.

Case 7.—Patient's memory was slightly cloudy at time of birth.

PARTIAL SUCCESS, EIGHT CASES

Case 15.—Drugs apparently had some effect on memory though not throughout. Duration of effect rather short—no marked improvement on giving last dose; patient very noisy, excited, and at times toward the end became irrational and difficult to control until about the last hour, when she quieted down considerably.

Case 24.—Patient had six doses 1/150 grain of scopolamin, but had few symptoms showing effect; although patient responded to memory tests before birth she had no recollection of the birth of child. She says she had chloroform.

Case 28.—Amnesia present to slight degree. Patient very noisy during the last hour, and had to have restraining sheet in ward.

Case 34.—Patient appeared very drowsy. Difficult to concentrate thoughts. At intervals she seemed to have cloudy memory for events.

SUMMARY OF CASES

	Totals	Primiparas	Multiparas
Cases	60	33	27
Drugs:			
Scopolamin, total amount (range)	....	2/200-9/150-11/200	8/150-7/200
Morphin, total amount (range)	....	1/8-2/8	1/8-2/8
Time from first to last hypodermic (range)	....	1: 15-19: 45; Av., 8: 15	1: 15-12: 15; Av., 5: 35
Duration (Compared with an untreated series of one year ago):			
First stage	....	17: 10 Untreated (10: 20)	14: 13 Untreated (7: 55)
Second stage	....	2: 10 series (2: 00)	1: 59 series (1: 33)
Total labor	....	19: 42 (12: 51)	15: 11 (7: 53)
Subjective symptoms:			
Memory, clear	26	12	14
Memory, cloudy	39	21	15
Deep T. S.	1	1	0
Very deep T. S.	0	0	0
Thirst	32	17	15
Euphoria, 2d S.	....	Good, 6; fair, 1; poor, 4	Good, 6; fair, 1; poor, 2
Headache	27	15	12
Vertigo	31	22	9
Objective symptoms:			
Sleep	43	24 (slight 8)	19 (slight 3)
Incoordinate movements	13	10 (slight 1)	3 (slight 1)
Reflexes	....	Not abolished	Not abolished
Flushing of face	45	24 (marked 2)	21
Dry skin and mucous membranes, 2d S.	18	10	8
Apparent effect on pain:			
Absent	1	1	0
Less	39	20	19
Average	19	10	9
Increased	1	1	0
Consciousness:			
Present	45	23	22
Partial	10	6	4
Absent	5	4	1
Excitation:			
Absent	39	17	22
Present	16	12	4
Marked	2	2	0
Delirium	9	7	2
Abdominal pressing:			
Good	24	10	14
Medium	18	9	9
Absent	10	7	3
Vomiting, 2d S.	4	1	3
Birth:			
Spontaneous	57	31	26
Operative, etc.	4	2 (forceps)	2 Kristeller abdom. section
Mental state at birth:			
Clear	28	15	13
Cloudy	26	14	12
Deep T. S.	5	4	1
Expression of pain:			
None	4	2	2
Slight	5	3	2
Average	37	20	17
Marked	8	5	3
Additional anesthesia	3	2 (ether)	1 (ether)
Perineal tears	12	7	5
Baby:			
Respiration spontaneous	47	25	22
Respiration artificial	13	8	5
Rhythm and character, 2d S.	3	3 feeble	0
Asphyxia	6	4	2
Oligopnea	4	4	0
Pulse 1 hr., P P, 2d S.	....	Good, 8; fair, 2; poor, 1	Good, 9
Pupils, 2d S.	....	Dilated, 4; slightly, 6	Dilated, 2; slight, 3
Stillbirth	1	0	1 (rupture uterus)
Late lasting symptoms:			
Mydriasis, 2d S.	8	7	1
Cloudiness, 2d S.	9	6	3
Delirium, 2d S.	2	1	1 marked
Puerperium:			
Breast engorgement, 2d S.	3	3	0
After-pains, 2d S.	8	6	2
Involution	....	Normal	Normal
Placenta:			
Spontaneous delivery	2	1	1
Credé	57	31	26
Manual removal	1	0	1 (laparotomy)
Blood pressure-range:			
Antepartum	....	115-150	115-150
Postpartum	....	110-145	110-145
Strength of contractions, 1st stage:			
Average	51	28	23
Decreased	8	5	3
Strength of contractions, 2d stage:			
Average	29	13	16
Decreased	28	18	10
Increased	3	2	1
Postpartum hemorrhage	7	5	2
Number of bimanual examinations (total, 77):			
One examination	52-52	26	26
Two examinations	5-10	5	0
Three examinations	5-15	2	3
Positions:			
L O A	47	25	22
R O A	10	7	3
R O P	1	1	0
Dp. tr. arrest	1	1 (No. 66 forceps)	0
Success of treatment:			
None	26	12	14
Little	7	6	1
Partial	8	4	4
Fair	5	4	1
Good	8	5	3
Complete	6	2	4

CASE 17.—Toward the end patient seemed slightly confused. Memory occasionally cloudy, but was quite clear after delivery.

CASE 21.—Patient drowsy throughout from a half hour after the first injection. Attempted to sleep between pains. Pain apparently uninfluenced; memory clear throughout.

CASE 48.—Patient was under effect of the drugs only at the very end. Treatment lasted 6½ hours.

CASE 51.—Patient's memory was only slightly cloudy.

FAIR SUCCESS, FIVE CASES

CASE 8.—Patient's memory was clear throughout, but she appeared indifferent to what was going on.

CASE 43.—Patient was under influence of the drug as concerns amnesia for about one hour. Treatment lasted five hours and twenty-five minutes.

CASE 44.—Patient's memory was cloudy—excitation in the last half hour very marked, throwing herself about wildly. In the ward she had to be tied in bed.

CASE 45.—Patient was wildly delirious at time of pain, sleeping between pains, but throwing herself about for two hours before delivery in a wild manner.

CASE 57.—Postpartum hemorrhage half hour after patient returned to bed. Patient did not know when the baby was born. Abdominal muscles not used after the fifth dose of scopolamin.

GOOD SUCCESS, EIGHT CASES

CASE 5.—Patient seemed to come partially out of the effect of the treatment shortly before delivery.

CASE 22.—Patient after the first three doses showed considerable amnesia; partially recovered; after last two doses she showed amnesia again and doesn't remember when the baby was born.

CASE 26.—After the third dose did not use her abdominal muscles; hence head remained at the vulva longer than need have been.

CASE 35.—Memory tests were interfered with on account of the delirium present. Patient seemed to remember on the following morning much better than had been expected.

CASE 47.—Patient was very quiet; very difficult to arouse; memory was cloudy; abdominal muscles not acting.

CASE 40.—So far as could be ascertained, this case was a success; patient quite an ignorant person and information difficult to obtain; memory quite cloudy; pain not noticeably diminished.

CASE 41.—Patient quite noisy immediately prior to delivery, but after child was born she slept, during which motions of the extremities were spasmodic and involuntary. Drug seemed to act promptly, and amnesia was present after the second dose.

Case 54.—Amnesia attained at the time of delivery—temporary—semi-delirious toward the end.

COMPLETELY SUCCESSFUL, SIX CASES

CASE 23.—Patient had absolute loss of memory, but was very delirious, throwing herself about in a wild manner. Repair work was almost impossible on account of her wild actions, and restraint was necessary in bed. Child started breathing with little stimulation; ten minutes later stopped and artificial respiration had to be resorted to.

CASE 60.—Patient did not know when baby was born. Conduct during labor excellent.

CASE 42.—Patient's memory was only slightly cloudy prior to delivery, but amnesia was more marked after the birth of the child. Delivery was rapid.

CASE 46.—Patient was very quiet and slept all the time from one hour before delivery until several hours thereafter. Pains during second stage were good, regular and strong, but abdominal muscles were not used.

CASE 50.—Patient's memory was cloudy. Gave no expression of pain at time of birth and slept most of the time.

CASE 52.—Patient's amnesia was complete. Slept almost all the time, arousing only slightly at the return of each pain.

Two primiparas, cases 53 and 56, classified as unsuccessful, received the maximum total doses, 9/150 grain scopolamin, and a primipara, case 49, classified as slightly successful, received 11/200, whereas case 60, primipara, and cases 42, 46 and 50, multiparas, classified as completely successful, each received a total of only 3/150 grain scopolamin. These striking variations in dosage, effective conversely to the total amounts used, show clearly how utterly uncertain the outcome must be in any given case. But the women whose faith in their local physicians of worth has been shaken by the trumpet blasts of the optimists—what do they know about these petty details?

The average duration of the so-called first stage (17:10, primiparas, and 14:15, multiparas) exceeded that of a series of one year ago of the same number of cases taken for comparison (10:20, primiparas and 7:55, multiparas) by about seven hours, while the second stages in the two series (2:10, primiparas, and 1:59, multiparas, this series, and 2:00, primiparas, and 1:33, multiparas, untreated series) were about equal. However, it must be remembered that the total number of bimanual examinations made on the entire sixty cases was only seventy-seven, and that every patient admitted to the Michael Reese Maternity is examined once bimanually as soon as prepared after admission, and thereafter not again unless there is the strictest indication; hence the onset of the second stage had to be determined in most cases by other means, such as rupture of membranes, bearing down pains, etc., and as a result the seven hour retardation should be considered as applying to the combined first and second stages. To overcome this generally conceded prolongation of labor (though several writers have claimed the opposite result) pituitary extract has been freely and frequently employed elsewhere. Such juggling with the natural powers, like the combined use of the brake and the whip, has seemed to us an attempt to make a right out of two wrongs. The use of pituitary extract in the Michael Reese Maternity service is limited sharply to the terminal portion of the second stage, when its maximum benefits are seen without secondary disadvantages.

Memory tests were carried out conscientiously but without unnecessarily disturbing those patients that seemed somnolent. Twenty-six remained clear throughout labor, thirty-nine were cloudy, yet the twenty-six had a greater total of scopolamin than the thirty-nine.

Thirty-two women complained of a thirst so intense as to be literally unquenchable. Their parched mouths and incessant requests for water were not the least distressing feature of the treatment.

Headache and vertigo were present in twenty-seven and thirty-one cases, respectively, and the former was a source of much distress and even intense suffering, persisting for several days in some cases. Yet these same women who were rendered so wretched, in many instances for hours and days after delivery, would have gone through a normal confinement of from eight to eleven hours' average duration, and would have been comfortable and happy thereafter, if they had not had the so-called blessings of "twilight sleep."

Forty-three patients slept part of the time, but could always be easily aroused, seeming to respond to external stimuli and to feel the contractions.

Pain was felt by many of these women regardless of the number of doses of scopolamin. It was diminished in thirty-nine, absent in one, average in nineteen and increased in one. That this applied equally to the cases at Freiburg, is evidenced by the various series in which additional anesthetics were used at the end, such as ether, ethyl chlorid, etc. If this be so, then why discard the old and tried combination of morphin hypodermically for pain and chloral by rectum, with completely effaced and partially dilated cervix, as used by the obstetricians of the Michael Reese Maternity for more than a quarter of a century with safety? The typical analgesia and amnesia of the more favorable reports in the literature were obviously not attained in a large number of cases in which we had every reason to expect results if the claims made by the proponents of this procedure had been substantiated.

Restlessness was present in eighteen cases and delirium in nine, in seven of which restraint and shackling were necessary. These "obstetrical jags," as Dr. Cary so aptly put it, represented the most annoying and unpleasant phase of the whole investigation, appeared in every kind of case with few or many doses, and necessitated unremitting watchfulness on the part of the nursing staff and interns, in spite of which such incidents as those in Case 59 occurred.

The serious risk of self-infection during labor engendered by the uncontrolled motions of these women was a source of constant anxiety. They sat cross-legged and the heel would enter the vulva. In their vague efforts to reach the region of pain, they repeatedly attempted to explore their genitalia. It was next to impossible to keep the genitalia free from feces, and the fact that we had no infections can be ascribed chiefly to the careful initial preparation all patients receive in the admitting room of the maternity, plus the untiring alertness of the nursing force to keep these women from harming themselves. In this connection, comment is in order on the practice of one clinic, in which patients undergoing the treatment are virtually under strait-jacket restraint. Is a treatment necessitating such measures deserving of recognition, much less approbation?

Three days prior to the occurrence of Case 62, rupture of the uterus, Dr. Frankenthal spoke to me of the danger that this treatment could obscure such important symptoms as the pain in premature separation of the placenta, *cessation of pains* in rupture of the uterus, even the presence of an eclampsia suppressed by medication similar to the Stroganoff treatment; and though thanks to the day and night staff, this case was detected, who knows what further disasters might happen in future series or isolated cases, under the combined blanket of the drug, the semidarkness of the room and the patient too restless for proper examination?

Birth in all cases but four was spontaneous. Case 9, sextipara, Kristeller, after the head had been on the perineum one and one-half hours; Case 61, primipara, heart tones dropped to 96, after 27:10 hours of labor and low forceps were applied; Case 66, primipara, broken cardiac compensation, head in deep transverse arrest after 22:25 hours, 4:25 of which were in the hospital, terminated by forceps; and Case 62, abdominal section for rupture of the uterus.

Amnesia at birth was entirely absent in twenty-eight, present in twenty-six, and marked in five, while analgesia was present in four, slight in five, pain was average in thirty-seven, and marked in eight at birth. Ether was used in three cases, all operative.

Perineal tears occurred in twelve cases, or 20 per cent. of the series, seven in primiparas, and five in multiparas, ranging from slight first degree, to deep second degree, all of which were repaired immediately, this being the routine in the Michael Reese Maternity for all tears however slight. In the untreated series of sixty cases of a year ago there were seventeen perineal tears, or 28 per cent.; but in this connection it is debatable whether a very slow passage of the head over the perineum and through the vulva, leaving the mucocutaneous surfaces intact, to be sure, but causing a separation of the perineal musculature subcutaneously with subsequent rectocele and possible prolapse, is more desirable than an occasional episiotomy with immediate and accurate repair. The understanding women of this generation seem much more concerned lest a tear be left unsutured or improperly sutured, than by the occurrence of the tear itself.

Respirations in the baby were spontaneous in forty-six cases, and required artificial aid in thirteen cases. Methods used ranged, after laryngeal aspiration, from spanking to hot and cold tubbing, artificial respirations, Schultze swinging, and direct tracheal insufflation by catheter. Four were oligopneic and six were asphyctic, requiring constant watching and in two cases repeated resuscitations.

The one stillbirth occurred in Case 62, rupture of the uterus, with escape of the fetus into the abdominal cavity and prompt death.

Of the "late lasting symptoms," the patients complained most of blurred vision; eight were pronounced, lasting over twenty-four hours; nine patients had cloudy memory lasting over six hours postpartum, and two had marked delirium, persisting two and four days postpartum. Who can read such statistics, knowing the care with which this work was done and the safeguards that were thrown around the cases, and not feel out of patience with those who seemingly are trafficking in the natural fears of pregnant women?

After-pains were noteworthy in eight cases, six in primiparas, a larger proportion than is usual; involution, breast engorgement and lactation were not influenced. Our mothers nurse their babies, the babies do well, and are taken off the breast only on the rare occasions when a threatened breast infection requires radical action to avoid pus formation.

"The exhaustion of labor" has always been conspicuous by its absence in the wards of the Michael Reese Maternity, excepting in the occasional pathologic primiparas, and even these are usually alert on the second day. We find it hard to understand this phrase, graphic though it is, for there is seldom a day when on making rounds it is not necessary to insist that some recently delivered woman get off her elbow, stop entertaining her neighbors, and lie down. The women are permitted to turn frequently, and after four days are encouraged to lie face downward the greater part of the time and so favor anteflexion in involution. All patients sit up in bed on the eighth day, get out of bed on the ninth and go home on the eleventh day (many on the tenth at their own request because they feel so well).

Spontaneous delivery of the placenta occurred only twice, fifty-seven cases requiring the Credé expression, which is not attempted until thirty minutes postpartum even if a placental pole shows at the outlet. In the untreated series of sixty cases there were five spontaneous expulsions. The single manual removal occurred in the case of ruptured uterus.

Blood pressures taken on admission and immediately postpartum showed an average drop of 5 mm.

There were seven postpartum hemorrhages, none of which required packing, but were variously controlled by holding the fundus (not massaging), vulvar compression, ergot and pituitary extract hypodermically, and temporary compression of the abdominal aorta. This compares unfavorably with the untreated series of sixty cases in which only one postpartum hemorrhage occurred, but is surely explained by the enfeebled contractions, the lengthened labor and the restlessness of the patients.

That frequent bimanual examinations are not necessary, even in such a series as this in which the patient is so unreliable a guide, is proved by the small total of seventy-seven in sixty cases, in spite of which no obstetric indications were overlooked.

From the foregoing results it seems reasonable to conclude that there are such dangers connected with the administration of the drugs, and that there is such a striking uncertainty of action in any given case, that the routine adoption of the treatment is not to be considered; moreover, it has been found impossible to "select" cases on any intelligent basis.

The lay press and magazines in their anxiety to outdo one another have published articles filled with the most extravagant phrases, but it is a bit out of the ordinary to read of a medical enthusiast announcing that by this treatment *the horrors of the delivery room are avoided*. The women must be few and far between who look back on the room in which they gave birth as a "chamber of horrors."

SUMMARY

The prolongation of labor, the increase in the number of fetal asphyxias, the excessive thirst and intense headaches that are so distressing, the difficult control of patients and avoidance of infection by soiling of the genitals, the more frequent postpartum hemorrhages, the blurred vision, the ghastly deliriums persisting far into the puerperium, the inability to recognize the onset of the second stage unless by risk of more frequent examinations, the masking of early symptoms such as antepartum hemorrhage, rupture of the uterus and even eclampsia, the violence and uncertainty of the whole treatment, the general bad impression given to our patients who are being taught to approach the "horrors of labor" in fear and trembling, constitute so severe an arraignment of this treatment of labor cases that we feel compelled to condemn it, leaving open the question of the merits of a single dose of morphin and scopolamin in those cases in which we have hitherto given morphin and atropin.

New Feature of Antifly Campaign.—At Buffalo in order to encourage and promote the antifly campaign the health department has inaugurated the plan of granting a certificate to the proprietors of all places of business who will make war on flies and certify on honor that there were no flies in their places on the first days of June, July, August and September. This it is believed will prove effective in increasing efforts against the fly nuisance. As suggestions in the way of fly extermination and prevention the following are offered: "Kill all winter flies, the egg-layers; clean up the premises and keep them free of dirt, refuse, manure, garbage, etc., the breeding places; screen all windows and doors; cover garbage cans and manure boxes; place fly traps in April; get the neighbors interested."

SCOPOLAMIN AND NARCOPHIN SEMINARCOSIS DURING LABOR[*]

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The conservative attitude of American physicians toward the use of scopolamin and morphin during labor has been chiefly due to the lack of uniformity in the results obtained in the various German clinics, for in that country the method was devised and has been steadily improved. In a number of obstetric cases recorded by Schneiderlein,[1] anesthesia obtained by this means proved fatal in one instance, and subsequently the use of these drugs for the purpose of obtaining complete anesthesia has not been advocated. A smaller dosage, as Steinbuchel[2] found, would induce seminarcosis which was safe for the mother. While in this state the patient may be sensitive to pain but is unable to remember that she suffered, or in fact, to remember anything which occurred during the course of labor. This method of treatment, therefore, does not produce anesthesia, but seminarcosis and amnesia.

Steinbuchel's technic, however, did not yield satisfactory results in the hands of Gauss,[3] who was stimulated to seek better means for regulating the administration of the drugs. Later Straub sought a more stable preparation of scopolamin. Such precautions were necessary to prevent overdosage and to avoid decomposition products of scopolamin which are toxic. Gauss believed that administration of these decomposition products, especially apoatropin, accounted for the untoward symptoms which Hocheisen[4] frequently observed and which led him to denounce emphatically the use of scopolamin in any case. But, even after the required stable preparation had been procured and the technic standardized to give uniform results in Freiburg, the reports from other European clinics varied. In Berlin, for example, Strassman[5] observed when scopolamin and morphin were used that uterine contractions were frequently impaired, and even more frequently that the fetus was asphyxiated; and for these reasons Strassman did not recommend the treatment. On the other hand, the results in Döderlein's clinic in Munich reported by Zweifel[6] have been encouraging.

The fact that efforts are being made continually to simplify and perfect the method also indicates that it is still in the experimental stage. In May, 1914, Siegel,[7] one of Krönig's assistants, reported a series of 220 cases in which narcophin was used to replace morphin. The repeated administration of both drugs was based on a time-schedule, and not on various tests which Gauss has employed. Siegel came to the conclusion that narcophin had less effect than morphin on the child and that the lapse of a given interval of time could generally be relied on as an indication for the need of additional doses of one or both drugs. As this report represented the last word from the Freiburg clinic and the results were as good as, if not better than, those previously reported we selected for trial the procedure which Siegel recommended. My conclusions, therefore, are based on the observation of thirty-five cases in which scopolamin and narcophin were administered. All the patients had normal pelves and in every instance the fetus presented by the vertex. In other words, if normal obstetric conditions did not prevail, we have not ventured to employ the treatment; nor have we used it in the case of elderly primiparas.

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[*] From the Woman's Clinic of the University Hospital.

[1] Schneiderlein: Die Skopolamin-Morphium Narkose, München. med. Wchnschr., 1903, i, 37.

[2] Steinbuchel: Schmerzverminderung und Narkose in der Geburtshilfe mit spezieller Berücksichtigung der kombinierten Skopolamin-Morphium Anaesthesia, Leipzig and Vienna, 1903.

[3] Gauss: Geburten in kunstlichem Dammerschlaf, Arch. f. Gynak., 1906, lxxviii, 579; Bericht uber das erste Tausend Geburten im Skopolamin Dammerschlaf, München. med. Wchnschr., 1907, p. 157.

[4] Hocheisen: Ueber Geburten unter Skopolamin-Morphium, Ztschr. f. Geburtsh. u. Gynäk., 1907, liv, 131.

[5] Strassman: Die Schmerzstillung bei der Geburt, Berl. klin. Wchnschr., 1911, xlviii, 982, 1046.

[6] Zweifel: Ueber Morphium-Skopolamin Dammerschlaf, Monatsschr. f. Geburtsh. u. Gynak., 1912, xxxvi, 719.

[7] Siegel: Schmerzlose Entbindungen in Dammerschlaf unter Verwendung einer vereinfachten Methode, Deutsch. med. Wchnschr., 1914, xl, 1049.

In each instance the treatment was started when there was definite evidence that labor had begun, or when the patient was admitted to the hospital somewhat advanced in labor. The first dose has usually been given when the pains were from five to ten minutes apart, and at this time the cervical dilatation was found to be 2 cm. or more in the case of primiparas, 4 cm. or more in the case of multiparas. In the earlier cases of the series the sequence of doses was arranged according to Siegel's schedule, but later it was found more satisfactory to depart somewhat from that routine.

SIEGEL'S SCHEME OF DOSAGE

Dose		Amount	Interval
First	Scopolamin	.00045 gm. (1.5 c.c.)	
	Narcophin	.03 gm. (1 c.c.)	
Second	Scopolamin	.00045 gm. (1.5 c.c.)	45 minutes after first dose.
Third	Scopolamin	.00015 gm. (.5 c.c.)	
	Narcophin	.015 gm. (.5 c.c.)	45 minutes after second dose.
Fourth	Scopolamin	.00015 gm. (.5 c.c.)	1½ hours after third dose.
Fifth	Scopolamin	.00015 gm. (.5 c.c.)	1½ hours after fourth dose.
Sixth	Scopolamin	.00015 gm. (.5 c.c.)	
	Narcophin	.015 gm. (.5 c.c.)	1½ hours after fifth dose.

According to Siegel's scheme, subsequent doses are administered every hour and a half as illustrated in the latter part of the table, and narcophin is added to every third dose of scopolamin. Thus the third, sixth and ninth doses contain scopolamin 0.00015 gm. and narcophin 0.015 gm. The intervening doses consist simply of scopolamin.

If this schedule was implicitly followed, we found occasionally that uterine contractions ceased, or the infant was born deeply asphyxiated. Consequently, we have limited the use of narcophin to the initial dose unless the effect of that dose was insufficient or wore off. And I agree with Knipe[8] that it is not always possible to regulate the dosage of scopolamin on a time basis. Nevertheless, such an outline as Siegel has provided will be found very helpful when beginning the use of this treatment, and the schedule has been satisfactory for more than half our cases. Whenever the patient is deeply narcotized and the uterine contractions are becoming impaired, the next dose indicated in the schedule should be deferred or dropped altogether.

Our solutions were prepared in the hospital pharmacy from the scopolamin manufactured by Hoffman-La Roche and from the narcophin manufactured by Boehringer Söhne, since these were the preparations Siegel recommended. The solutions were made so that 1 c.c. of the one contained 0.0003 gm. scopolamin, and 1 c.c. of the other 0.03 gm. narcophin. At any one time only small quantities of the solution were prepared, for it is most important that fresh solutions be used. With age they deteriorate and become ineffective, or on the other hand decompose, giving rise to toxic substances. If a white flocculent precipitate appears in the scopolamin solution, it should be thrown away. Following the use of such a mixture, Gauss observed severe postpartum hemorrhage and deep asphyxia of the infant.

The drugs were administered with an ordinary hypodermic syringe. At the time when the required dose included both scopolamin and narcophin, the solutions were mixed in the syringe. The site of injection was the upper arm; first one and then the other was utilized. A subsequent local reaction was noticed in one case but this was negligible. The average number of doses of scopolamin administered was from five to six; the largest number was thirteen and the smallest two.

Except in five cases, chloroform inhalations were employed toward the conclusion of the second stage of labor. These exceptions were made in order to learn what conditions prevailed if scopolamin-narcophin narcosis alone was employed, as the head passed through the vulva. These patients were multiparas and, although they remembered nothing of the delivery, I believe that aseptic measures can be better carried out if chloroform is administered.

Our cases included eighteen primiparous and seventeen multiparous women. As has been frequently noted, patients differ in their susceptibility to the drugs in question, and such differences bear no relation to parity. Approximately 17 per cent. of our cases (six instances) not only experienced pain and remembered it, but also remembered other things which happened while they were in labor.

In a typical successful case the first effects appear about fifteen minutes after the initial dose. The patient experiences a "heavy feeling" in her head, and becomes drowsy; later she falls asleep to awaken with each painful uterine contraction. Generally, when an attendant enters the room the patient will pay no attention and, if questions are asked, she may seem unable to comprehend their meaning. Muscular twitchings were noted in twenty-three instances. Similarly, in about two-thirds of the cases thirst was a conspicuous symptom.

Not infrequently circulatory disturbances were observed, but these have never been of an alarming character; and it is difficult to decide to what extent these symptoms should be attributed to the treatment. Some of them are familiar during the normal course of labor as, for example, flushing of the face, which in this series appeared twenty-four times. Marked injection of the conjunctivae occurred four times.

Variations in the pulse rate were not uncommon during the early part of the narcosis. The most extreme effect of this sort was exhibited by a patient whose pulse varied between 64 and 140. Arrhythmia also was occasionally observed. A slight acceleration of the pulse occurred in half our cases, most frequently after the second or third injection. Subsequently, there was a tendency for the count to become normal; but in seven cases the pulse rate varied notably during the whole course of labor. On the other hand, respiration was not affected by the dosage we have used.

Generally, as the narcosis became more and more profound, the patient was inclined to sleep, or at least remained quiet and unconcerned. As a rule, when aroused and given instructions she obeyed (thirty cases), but in two instances while the directions seemed to be understood, the patient would make no effort to bear down. Occasionally toward the end of the second stage of labor, patients became excited, even violent, and almost unmanageable. This complication occurred in three instances (about 8.5 per cent.); according to other observers, its frequency is as follows: Gauss 1.4 per cent., Preller[9] 1.7 per cent., Hocheisen 10 per cent., Steffen[10] 13 per cent., and Mayer[11] 26 per cent.

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[8] Knipe: The Freiburg Method of Dammerschlaf or Twilight Sleep, Am. Jour. Obst., 1914, lxx, No. 6, p. 884.

A prolongation of labor due to the use of scopolamin and an opiate has always been admitted, and may occur in a fourth of the cases (Hocheisen, Steffen, Avarffy[12]). Strong advocates of the treatment estimate the amount of prolongation as something less than we have found. From our observations it appears that labor may be prolonged three or four hours in the case of primiparas. In multiparous women there is an average delay of an hour. Thus, the average duration of the first and second stages in this series was twenty-one hours in the case of primiparas and twelve hours in the case of multiparas. The corresponding figures for normal cases are eighteen and eleven hours, respectively.

In the first stage of labor the contractions may or may not be impaired. Approximately four fifths of our patients were unaffected, but in the remaining cases the contractions became weaker and the interval between them longer. In two instances, contractions ceased completely after three doses; there was an interval of two hours in one instance and three in the other before they were reestablished. With both these patients the treatment was begun early in labor, and evidently it is exceedingly important that the "pains" become regular, and at least ten minutes apart before the initial dose is administered.

Unless frequent examinations are made, it becomes difficult to determine when the first stage ends. Generally, we have employed rectal examinations, and have based our estimates on those findings. However, it is noteworthy that as a rule, patients who have been quiet become restless when they enter on the second stage of labor. This observation has a practical significance, for, if seminarcosis is employed, the obstetrician must learn when the cervix is fully dilated in order to instruct the patient to bring voluntary effort into play. If not told to do so, while under the influence of scopolamin and narcophin, she will not assist the expulsion of the fetus. Generally the response to advice is prompt and satisfactory; otherwise pushing down on the fundus or grasping the hands and pulling on the arms of the patient at the proper moment usually arouses her to employ her abdominal muscles. Once the idea is grasped, there is no trouble in securing continued cooperation. The retardation of the second stage of labor chiefly depends on the difficulty of getting the patient to bear down.

Pituitary extract was given in nine cases and was effective in only three. But in no case was more than one dose administered. It is pertinent that in two instances in which the pituitary extract had no effect there was also no narcotic influence from the scopolamin and narcophin, although in one case eight doses had been given according to Siegel's schedule, and in the other case eleven doses. We have found that pituitary extract does not stimulate patients in seminarcosis to employ their abdominal muscles.

There was a frank indication for the use of forceps — usually after pituitary extract had failed — in six cases in this series, four primiparas and two multiparas. Twice the operation was a mid and four times a low forceps. In all these cases, although the patient had been in the second stage two hours, there was no advance. The failure to progress was explained more frequently by the patient's lack of inclination to assist herself than by inefficient uterine contraction. Two patients who required the use of forceps were unmanageable in the second stage, and after the lapse of two hours were delivered under chloroform anesthesia. In another case no effect had been secured from scopolamin and narcophin, and forceps were employed on account of a rigid perineum. Excluding the last instance, the frequency of forceps operation (14 per cent.) remains greater than we have previously been accustomed to. And our experience accords with that of Fehling, who considers that if scopolamin is used, the frequency of operations is approximately doubled.

The third stage of labor was uninfluenced by the administration of scopolamin and narcophin. In one instance an hour after the patient was delivered a moderate postpartum hemorrhage occurred, but this was due to temporary atony such as we encounter once in every forty or fifty multiparous patients, even though delivered without any anesthetic. Massage and pituitary extract were promptly effective, and the excessive bleeding did not recur.

Following labor the narcosis passed away in from two to four hours. The return to normal mental conditions, however, depends on a number of factors, as the amount of the drugs administered and the extent to which the patient is aroused by her attendants and surroundings. The puerperal convalescence is uninfluenced; as one makes rounds of the wards he cannot distinguish patients who have received scopolamin and narcophin during labor from those who have not.

Obviously, the effect of scopolamin and narcophin seminarcosis on the fetus is a matter of prime importance. During the labor the fetal heart sounds were observed as a routine every half hour, and in some cases more frequently. In no instance was there an appreciable effect on the character of the sounds, and also the effect on the rate has been negligible. The lowest fetal heart rate was 116, and the highest 176. Naturally, in individual cases there has been some variation between the counts made at different times, but again here we have not noted anything unphysiologic. The difference between the highest and the lowest counts averaged 17 beats to the minute.

While delivery was taking place, meconium was passed in four instances, but none of these infants was deeply asphyxiated, and two cried as soon as they were born.

The establishment of respiration in the new-born infant is frequently delayed when the mother receives scopolamin and narcophin during labor, and in these circumstances the delay depends on the narcotized state of the infant. Slight asphyxia (oligo-apnea) was present in six instances; but in these cases there was no cause for anxiety, for a few slaps on the back promptly made the infant cry. Deep asphyxia (apnea) also occurred in six cases (17 per cent.), and although all these infants were resuscitated, vigorous measures were required for a period of fifteen or twenty minutes. Most of the cases of apnea occurred early in our experience. It is also noteworthy that deep asphyxia appeared most frequently when the mother received only a few doses of the treatment. This fact, we believe, is explained by the relatively larger dosage of narcophin at the beginning than toward the end of Siegel's schedule. Acting on this conviction, whenever the first stage of labor was well advanced before the treatment was begun, we have made it a rule to give only the initial dose of narcophin. Moreover, in all cases the administration of the opiate should be guided by the requirements of the individual patient — not by a time schedule. Since we adopted these precautions, cases of asphyxia have become less frequent. But our experience teaches that narcophin is open to the same objection as morphin, and its use offers no advantage over that of morphin.

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[9] Preller: Zur Anwendung von Skopolamin-Morphium in der Geburtshilfe, München. med. Wchnschr., 1907, liv, 161.

[10] Steffen: Zur Skopolamin-Morphium Wirkung bei Geburten, Arch. f. Gynäk., 1907, lxxxi, 451.

[11] Mayer: Skopolamin-Morphium bei Geburten, Zentralbl. f. Gynäk., 1908, xxxii, 689.

[12] Avarffy: Der Skopolamin-Morphium Dammerschlaf in der Geburtshilfe, Gyn. Rundschau, 1909, iii, 338.

Another precaution of no slight importance consists in making the infant cry lustily as soon as it is born. If the physician is content that regular respirations have become established, and before the baby cries entrusts its supervision to a nurse, he may later be notified that the baby has collapsed. In a case of this kind, although only a few minutes had passed since the infant was handed to the nurse, we had considerable difficulty in reviving it, and half an hour elapsed before we were successful. In any case, if scopolamin and an opiate have been used, the infant should be carefully watched for at least an hour and sometimes longer, for the drugs are transmitted through the placenta, and a smaller or larger amount of them is present in the fetal circulation at the time of birth.

None of the infants in our series died as a result of the use of the drugs in question. However, there was one fetal death which occurred on the second day after birth. Clinically the diagnosis was malformation of the heart, and the necropsy revealed a perforate interventricular septum, stenosis of the pulmonary valves, and marked dilatation of the pulmonary artery. Evidently these lesions were congenital.

After the first day of life, the effect of scopolamin and narcophin on the infant may be disregarded. In their development, the infants whose mothers have received this treatment behave like others. There is the customary initial loss of weight, and this is not exaggerated. The birth weight is regained toward the tenth day, as in other cases. Furthermore, this method of narcosis exerts no baneful influence on lactation.

It is the difficulty occasionally encountered in resuscitating the infant which provides the chief objection to the use of scopolamin and an opiate during labor. And while we have met no case in which resuscitative measures failed, the prolonged efforts occasionally required enable us to understand that fetal deaths may result from the treatment. In Chrobak's clinic, one fetal death in 107 cases seemed chargeable to scopolamin and morphin, and Avarffy recorded one fetal death in fifty cases.

On the other hand, we are strongly encouraged by the testimony of mothers to continue the use of scopolamin and narcophin seminarcosis in obstetric cases. In those which we have observed, approximately four fifths (twenty-nine patients) remembered nothing which happened after they were under the influence of the drugs, and were unaware that the baby was born until they were told; therefore, these may be counted successful cases. Patients always have a clear recollection of the first dose, frequently of the second and sometimes of the third. As a rule, satisfactory narcosis is secured between the second and third doses, about two hours after the treatment is begun.

In two instances—so-called partial successes—there was a clear memory of everything which happened during labor, but these patients considered that the treatment had modified their suffering. In four instances the treatment had no effect whatever on the mother. Therefore, our experience teaches that once in six or seven cases (17 per cent.) scopolamin and narcophin will not have the effect for which they are administered. Siegel also admits 12 per cent. of failures. Similar results are observed if morphin is used in place of narcophin. Thus, Tischauer,[13] who collected 2,270 cases, found that the frequency of failures, in the reports of observers outside of Freiburg varied from 20 to 54 per cent.

No injurious effect on the mother was encountered in our experience, but it must not be forgotten that we have rejected cases in which complications of labor were anticipated. With this caution, and if the patient understands that some difficulty occasionally arises in reviving the child, her wish to receive scopolamin and morphin or narcophin seminarcosis during labor may be complied with. However, physicians must recognize that the method has not reached the perfection which warrants indiscriminate use. For example, even moderate degrees of pelvic contraction make it inadvisable to employ seminarcosis, for in these circumstances its effects may diminish the chances for spontaneous delivery and occasionally necessitate the performance even of major obstetric operations. Similarly, the primary inertia not infrequent in the case of elderly primiparas constitutes a contraindication to the use of scopolamin. For the present, therefore, it would seem advisable to employ this drug only when there is every indication that the patient will pass through a normal confinement.

An intimate knowledge of obstetrics is required if physicians wish to administer seminarcosis successfully, for sound judgment must be exercised not only in the selection of cases but also in the management of labor. The supervision of patients who are under the influence of scopolamin and an opiate requires competent assistants. For this reason, and also because the frequency of operative procedures is increased, good hospital facilities are desirable. However, such precautions do not mean that the method is impracticable and that it ought to be discarded. On the contrary, the very satisfactory results in the majority of cases provides the stimulus to secure further improvements in the method which will broaden its field of application and remove its objectionable effect upon the new-born infant.[14]

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[13] Tischauer: Das Skopolamin-Morphium in der Geburtshilfe, Inaug. Diss., Freiburg, 1911.

[14] In addition to the references already given, the following will be found of interest:

Bass: (Chrobak's clinic): Hundert und sieben Geburten in Skopolamin-Morphin Halbnarkose, München. med. Wchnschr., 1907, p. 519.

Fehling: Die Geburt im Dammerschlaf: Fruhaufstehen im Wochenbett, Strassb. Med. Ztg., 1909, vi, 14.

Prognosis.—I suppose prognosis is more difficult than diagnosis, because in the latter one still has Nature in consultation; when it comes to a question of prophecy, the doctor is pitting his opinion against that of the Senior Practitioner. —Adolphe Abrahams, *Practitioner*, March, 1915.

MECHANICS AND PATHOLOGY OF TUBERCULOUS HIP-DISEASE IN THEIR RELATION TO ITS DIAGNOSIS AND TREATMENT

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Some years ago, when I began a study of the cases of hip-disease which were then, and had been treated at the Hospital for Ruptured and Crippled, I began, at the same time, to study the literature on this subject. I soon discovered that there existed a great diversity of opinion regarding the treatment of this condition.

It was admitted on all sides that we were dealing with a disease for which we had no specific remedy, and that our only resource was to treat the condition from a purely mechanical point of view. As usually stated, the idea was to maintain the affected limb at rest in order to allay the inflammatory reaction; it was to be held in a manner which would permit of locomotion, so that the patient might obtain the benefit of fresh air and exercise; and finally the brace or apparatus to be used for this purpose should be so constructed that the limb would be in the best possible position for locomotion when the disease was cured or arrested.

In a word, the treatment for tuberculous hip-disease was, and, for that matter, still remains, a question of mechanics.

Now mechanics, as is well known, is a mathematical science. Such being the case, there should not be a diversity of opinion as to the mechanical requirements or the methods of fulfilling them. Given similar conditions, the indications must be similar. Hence, with a diversity of opinion as to the methods, it must be assumed that some or all of the methods in use for the treatment of hip-disease are inadequate.

It was in order to discover, if possible, the exact mechanical requirements to be fulfilled in the treatment of hip-disease, that I then began the study of the anatomic mechanics of the normal, as well as the tuberculous hip-joint, in connection with my clinical studies. The results of these studies cannot be presented in their entirety at present. I feel, however, that the importance of the subject justifies the presentation of some of the conclusions, though there can be only a brief allusion to the details of the work on which they are founded.

I shall call attention only to the few anatomic and mechanical details which bear directly on the questions to be discussed.

Of all the organic joints, the bones of the human hip-joint most closely resemble ideal geometrical figures. The head of the femur is part of an almost perfect sphere; it is, during life, closely embraced by the acetabulum and the cotyloid ligament; and these together form an almost perfect ball and socket joint. Hence this joint is in every way comparable to the inorganic ball and socket joint of the technician, and as such, is subject to the same mechanical laws and advantages.

Unfortunately, with the advantages which this perfect mechanical form brings, there exists the disadvantage, that slight incongruities of the articulating surfaces lead to marked impairment of function. It is for this reason that conditions which in other joints, would cause only a slight impairment of function, that in time might be compensated for, lead to marked and often permanent damage in the hip-joint.

The extent of motion in the hip is considerably augmented by the length and slenderness of the neck. Here again the mechanical advantages of the structure are in a measure offset by the disadvantages which arise from this form; namely, great liability to distortion and consequent impairment of function under pathologic conditions.

In by far the majority of cases of tuberculous hip-disease, the lesion lies in the articulating bones. Roentgenoscopy in a large number of cases has borne out the pathologic investigations of the older writers in this respect. My own investigations have led me to believe that not only are the bones practically always affected, but that, in the majority of cases, the bone lesion is the primary one.

In a small percentage of cases the lesions may be in the neck outside of the capsule or in the trochanter, and, remaining so, the joint does not become involved. When this is the case the patient of course recovers with perfect joint function.

In by far the greater number of cases, the bones within the articulation are affected. In my own cases, the neck, the head, and the acetabulum were primarily affected in about the same proportions.

No matter where the disease begins it rarely remains focal. Not only does the actual focus extend, but surrounding it for some distance is an area of inflammatory atrophy, which, in the milder cases, may be moderate and more or less limited in extent. In the average case the inflammatory atrophy is marked and extensive; and in the severe ones, it leads to extensive bone absorption; separation or absorption of the head; complete absorption of both the head and neck, deepening or enlargement of the acetabulum alone, or in combination with the previously mentioned changes in the femur.

These changes depend on the character of the pathologic condition. I have seen them occur in cases treated by all known procedures. Braces, bed extensions, plaster spicas long and short, are powerless to prevent them.

Any one who will follow a large series of cases, treated according to any method will find this to be true. I have roentgenograms of a number of cases treated by means of the long-extension hip-brace (which is supposed to prevent absorption and destruction) which illustrates the usual course of events.

Hence, it is evident that not only have we no specific remedy, but we have not even the means to prevent or check the mechanical damage induced by the pathologic process.

This being true, what is the ultimate outcome of the condition? As we have no apparatus which will prevent atrophy and absorption, can we by the use of an apparatus retain the parts in their normal relations until some reparative process will restore, in a measure, the normal density, contour and relation of the affected parts? My experience leads me to believe, that restorative processes in hip-disease are practically absent.

If one follows the course of a number of cases of hip-disease, making frequent careful clinical and roentgenographic examinations it will be found that the course and final outcome will only vary within certain limits.

All the cases seen during the early stages will present nothing more than the symptoms of hip irritation;

that is, the same reaction which any inflammatory or irritative condition in or near the joint will induce. The hip-joint, depending on the degree of the irritation, will be held more or less firmly in a position of flexion, abduction and slight external rotation. It is held in this position not because there is a specific irritation of the muscles which maintain this position, but because this position produces the most complete relaxation of the hip under the existing mechanical conditions. Because of the course of the muscles which surround the hip-joint and the peculiar construction of the capsule and its accessory ligaments, this position must be assumed in order to produce relaxation. Whether the position assumed is voluntary or involuntary is beside the question.

At this stage it is impossible to make a positive diagnosis of tuberculous hip-disease, for the same symptoms will be present in all forms of inflammation in the joint or its neighborhood. In my own cases, I consider that I am not dealing with tuberculous disease when patients presenting these symptoms get well with perfect function, unless I can demonstrate an extra-articular focus by means of the roentgenogram.

Even when, as the subsequent course of the disease demonstrates, we are dealing with tuberculosis, roentgenoscopy shows definite changes in only a small percentage of cases at this time. I have rarely been able to demonstrate an actual focus during the early stages.

After a variable length of time, a symptom-complex occurs, which the older writers describe as the second stage of the disease. It has been the practice of late years to ridicule this division of the disease into two stages; yet, though the transition is gradual and the two stages of the disease cannot always be definitely separated clinically, what has been called the second stage of hip-disease undoubtedly corresponds more or less closely to certain definite pathologic and mechanical conditions.

It is at this stage that the bone atrophy and bone absorption with the consequent deformation begin. The course from now onward can be traced by roentgenoscopy. We are by this means enabled to say definitely whether or not we have femoral or acetabular disease or both.

Clinically, both these conditions manifest themselves in the same way so far as the deformity is concerned. That is, in both these conditions the result is adduction deformity.[1]

The adduction like the abduction deformity is due, not to the specific nature of the disease, but to mechanical conditions. As has been said, the abduction is assumed to relax the hip-joint. That this position cannot be retained by muscular action alone, irrespective of other conditions, must be self-evident to every one with a knowledge of muscle physiology and mechanics. Whether the muscular contraction which holds the hip in the abducted position is caused by so-called muscular spasm or is voluntary, the power of the muscles engaged in producing this position is entirely inadequate to retain it for any great length of time. The force of gravity soon overcomes it, and when there is no deformation (for instance, in synovial conditions which, by the way, are much more uncommon in the hip than in the knee) the limb will fall and will finally become adducted, unless prevented from doing so by some external force.

When there is no deformation of the bones the cause of the adduction deformity lies in the efforts of the patient to save the leg from weight-bearing. Unable to retain the abducted position to relax the hip, the patient tilts the pelvis on the other hip so that the foot of the affected limb barely touches the ground. This position becomes permanent, that is, we have what is known as adductor contracture; not because the adductor muscles contract actively, but because the distance between the origin and insertion of the adductors is lessened, and according to physiologic laws these muscles accommodate themselves to this distance. When there is deformation of either the femoral or acetabular part of the articulation, the normal angle between the neck and shaft of the femur or the normal angle between the mechanical long axis of the limb and that of the shaft of the femur is so changed that mechanically the limb must become adducted.

The position of adduction will occur either during or after treatment in practically all cases of hip-disease, unless the limb becomes firmly ankylosed in the abducted position. If the patient has been on a brace, the brace sometimes, certainly not always, will hold the limb in a straight line for the time being. As soon as the patient begins to walk, however, he acquires an adduction deformity. Cutting the adductors, stretching and even osteotomy of the femur will not prevent its recurrence.

It is needless to discuss the disadvantages of this position. Yet disabling as this deformity is known to be, it does not approach the disability caused by acetabular disease. In this case the femoral head is gradually pushed upward as soon as there is weight-bearing, until it becomes subluxated or completely dislocated. Such patients not only have an adduction deformity but must bear the weight of the limb on the more or less completely destroyed capsule and the gluteal muscles. The result is that these patients not only walk badly, but are exceedingly subject to hip-strain.

In all cases of recovery from hip-disease with distortion and motion, the final functional result, that is, the result in adult life (which is the only result to be considered), is poor in every respect.

Thus from a careful consideration of the anatomy, the physiology and the mechanics, I have been led to exactly the same conclusion as that arrived at by Lorenz empirically. That is, to judge from the pathologic and mechanical conditions, I believe that the only result which can give the patient a really useful limb in adult life is one with bony ankylosis.

Whether or not we can attain this result by means of the short spica is another question. There can be no doubt that the ultimate mechanical requirements are much more likely to be fulfilled when the limb is held in the most advantageous position with regard to weight-bearing, than with any of the methods of treatment at our disposal at present. The tuberculous process in the bones is attended by a minimum of inflammatory reaction. It is only by weight-bearing or motion that we can stimulate the reaction processes to bone formation and thus increase the prospects for bony ankylosis.

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[1] The location of the disease, when it is not so acute that the patient resists all attempts to move the joint, can in a measure be ascertained by physical signs. From the examination of many cases, comparing the joint symptoms with the roentgenogram and what the mechanics of the condition would lead one to expect, I have learned to locate the site of the disease even without roentgenoscopy. For example, a high trochanter with limitation in abduction, the other movements being free, is indicative of acetabular disease. When all motions are limited except flexion and extension (rare in tuberculous hip-disease but not so uncommon in senile osteo-arthritis of the hip), there is central acetabulum disease leading to intrapelvic displacement of the head of the femur; when the neck alone is involved the objective signs closely resemble those of coxa vara, though in tuberculous hip-disease there is more general limitation of motion. A high trochanter with limitation of motion in all directions is indicative of marked deformation of the head of the femur. It must be remembered, however, that these differential signs can only be made out after the acute irritative symptoms (because the joint has been immobilized or the disease is arrested) have subsided.

Even when the treatment with the spica and weight-bearing is conscientiously carried out, unfortunately we do not always succeed in securing an ankylosis. I firmly believe that we should seek to produce ankylosis in all cases in which there is deformation or much atrophy, by operative measures as soon as the disease has become quiescent.

As all who have attempted to operate on these patients know, the conditions for operation are unfavorable in adult life. The exposure is difficult, the tissues are resistant and the adult does not withstand the operative measures nearly so well as do children. In children, on the contrary, the exposure is easy, the tissues are elastic and the operative risk is practically nil. Moreover, I think it a mistake to attempt to save atrophied bone. Healthy bone-surfaces should be brought into apposition, and weight-bearing, with the proper precautions, should be encouraged as soon as possible after the operation. It is of course ridiculous to expect stumps of atrophied bone to bear the weight of the body; they should be removed and if necessary the trochanter should be brought into contact with the denuded acetabulum.

Concerning the plaster spica treatment, the hip should be retained as nearly as possible in the middle position, that is, slightly flexed, abducted and only slightly rotated out. Eversion is a disabling deformity and should be scrupulously avoided. The spica, except when it is applied for the relief of irritative symptoms, need not, nor will it when it extends only to the knee, completely immobilize the hip.

It is, of course, impossible to give details; when a patient should be in bed, and when he should be up, will depend on the circumstances. Above all it should be remembered that there can be no invariable rules; for in every case the mechanical and pathologic conditions must be met as they appear in that particular instance. So, for instance, in the isolated acetabular cases, with enlargement of the acetabulum, it is often difficult to attain bony ankylosis, and sometimes impossible to prevent subluxation or dislocation even when the spica is worn constantly. In such a case I have used a Thomas knee-brace, so modified that there is a sole plate instead of extension rods and a snap joint at the knee, when the condition has become quiescent. In a number of cases so treated, I have been successful in preventing luxation for some years, even after the brace was removed. As none of these individuals have as yet attained their full height and weight, however, I do not know whether or not the result is permanent.

The conclusions here presented are based on a study of about two hundred cases. Particular attention was given to final results. By final results I do not mean that the condition at the time the patient was discharged with the disease supposedly arrested or cured, but the condition after such an individual had used his affected hip during adult life. I place absolutely no reliance on statistics, particularly those obtained by letter from patients or their family physicians who live at a distance.

The results of the study here presented in a somewhat general way may be summarized as follows:

Tuberculosis of the hip is a destructive disease, which practically always leads to marked impairment of the joint structures. So far as we know, there is no treatment which will prevent or limit the destructive process and we have not, therefore, a method which will prevent permanent impairment of joint function.

Such being the case, it must be admitted that we have no adequate treatment for hip-disease. For the present, we must be content to choose the method which will give the patient the strongest limb to stand and walk on, irrespective of joint motion or shortening.

At present the treatment with the short plaster-of-Paris spica, with all its shortcomings, is better than any other heretofore in use, provided it is scientifically carried out.

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BENZOL IN LEUKEMIA

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Last year I described two cases of leukemia treated with benzol (benzene, C_6H_6) after the plan of Koranyi. This article[1] is so recent that it will not be reviewed here. The extensive bibliography on the subject is also omitted; it was reviewed then, and Sappington and Pearson[2] have given a list of the articles on the subject to the date of their own.

Suffice it to say now that the patient with lymphatic leukemia referred to has since died. As suggested, benzol was discontinued shortly after the paper was printed because it seemed to have no effect on the leukemic process. So far as we could see, benzol neither helped nor harmed the patient.

The second case, one of the splenomyelogenous type, has been under observation almost continuously since Aug. 23, 1913, nineteen months. The length of treatment exceeds any that I have seen recorded, itself a matter of interest. The case is interesting, furthermore, because of the confirmation of some of my impressions expressed a year ago: until now certain fixed opinions relative to the worth of the drug and its dangers have been arrived at.

The mass of data accumulating in so many months may be omitted; that part of them which seems to have a bearing is given in the accompanying table.

The several features of this table stand out almost without the need of comment. What I shall have to say is more in the way of the conclusions to which they seem to lead.

A year ago I expressed the opinion that "benzol is a remedy of remarkable potency in myeloid leukemia." In spite of all that follows which may seem to argue to the contrary, I am convinced that it is the most helpful of all known agents in the treatment of leukemia of this type. When it is recalled that the patient under consideration was a boy of 13 years when the treatment was started; that his spleen then occupied about four fifths of the abdominal cavity, and that the leukocytes numbered 499,000, one is justified in expressing surprise that he is still living.

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[1] Smith, F. H.: Benzol Treatment in Two Cases of Leukemia, The Journal A. M. A., March 21, 1914, p. 921.

[2] Sappington, S. W., and Pearson, W. A.: The Leukemias under Benzol, The Journal A. M. A., July 11, 1914, p. 143.

Such a case in an adolescent would have been generally conceded to be hopeless prior to the benzol treatment. "There is no known remedy that seems even to stay the course of the disease. Once the diagnosis is positive, the case is hopless."[3] Yet this boy is still living, is attending to his school duties, expresses himself as being entirely well, and on casual observation would seem so.

That the result is due to benzol cannot be reasonably questioned. There has been no other treatment than that indicated in the table. Even a casual inspection of the table will force the conclusion that the drop in the leukocytic count is directly dependent on the exhibition of the chemical in sufficient dosage.

The effectual range of dosage has also been fixed for this individual case. One notes that only once has a dose of 25 drops three times daily been exceeded; that results have followed a dose of from 20 to 25 drops three times daily (4 to 5 gm. approximately a day). Any less dose seems worse than useless, as this case in one of its phases suggests that the leukopoietic system becomes immune in time to a dose which was leukotoxic perhaps but a short time before. If such a conclusion be true, then the smaller than effective dose may in course of time become actually stimulating to leukocytic generation. Larger doses have so far not been necessary, and as with all potent drugs, one's desire should be to keep the dose within the limits of potency on the one hand, and of safety on the other.

A second statement of a year ago is also amply confirmed: "Beyond a doubt, 'benzol is a two-edged sword.'" There is nothing more certain in benzol therapy than this: the practitioner who prescribes the drug without making frequent blood counts is courting disaster. We have only to point to the blood picture of the table to justify the statement that there is no possible way of guessing what the count will be on the basis of the last; and, therefore, of judging whether the dose should be held stationary, increased, decreased or stopped altogether. I am firmly convinced that such judgment must be constantly exercised, under the threat of having the disease jump out of bounds on the one hand, or of producing disaster on the other.

One can guess that the rise of the count after a fall will be slower and more gradual than a drop. This is illustrated several times in the table. Nothing in it is more striking than the abrupt way in which the count drops from a point around 30,000 to 6,000 or

COURSE IN A CASE OF SPLENOMYELOGENOUS LEUKEMIA

Date	W. B. C.	Differential	R. B. C.	Hgb.	Spleen	Medication, Drops
8/18/13	372,000	Many myelocytes	3,072,000	55	4-5 of cavity	None.
8/23/13						Benzol, 5, t. i. d.
8/25/13	499,000				Slight change	Benzol, 10, t. i. d.
9/ 1/13	428,000		3,172,000	52	Girth 28.5 in.	Benzol, 15, t. i. d.
9/13/13	349,000		3,180,000	53		Benzol, 20, t. i. d.
9/19/13	185,000				Diminished	Benzol, 22, t. i. d.
9/24/13	122,000	Myelocytes fewer				Benzol, 22, t. i. d.
9/27/13	128,000					Benzol, 24, t. i. d.
10/ 4/13	41,000				Right abdomen clear	Benzol, 24, t. i. d.
10/11/13	10,600				Left side 1.5 in below navel	Benzol, 20, t. i. d.
10/18/13	6,600				Barely felt lt. costal margin	None.
10/25/13	8,400	Few myelocytes	5,608,000		1 in. below ribs	Benzol, 10, t. i. d.
11/ 1/13	9,750		5,888,000	67	Same	Benzol, 12, t. i. d.
11/ 8/13	9,000	P., 71; S., 18; L., 3; My., 4; Mz., 3; E., 1.	5,608,000	60	Rib margin	Blaud's pill, t. i. d.
11/15/13	10,800				1.5 in. below ribs	Blaud's pill, t. i. d.
12/ 6/13	9,600	P., 76; S., 18; L., 1; E., 1; Mz., 2; My., 2.			0.5 in. above navel	Blaud's pill, t. i. d.
12/20/13	10,400				1 inch below ribs	Blaud's pill, t. i. d.
1/17/14	16,200	P., 56; S., 20; L., 8; E., 5; My., 9; Mz., 2.			Half way to navel	Benzol, 10, t. i. d.
2/14/14	22,000				½ in. above navel	Benzol, 25, t. i. d.
3/ 7/14	28,400				Half-way to navel	Benzol, 20, t. i. d.
3/14/14	33,200					Benzol, 20, t. i. d.
3/28/14	14,800					Benzol, 20, t. i. d.
4/11/14	27,800					Benzol, 25, t. i. d.
4/18/14	13,200					Benzol, 20, t. i. d.
4/25/14	24,200	P., 59; S., 20; L., 3; E., 5; Mz., 3; My., 10.			1 in. above navel	Benzol, 25, t. i. d.
5/16/14	22,800					Benzol, 27, t. i. d.
5/25/14	15,200	P., 61; S., 24; L., 7; E., 4; My., 4.				Benzol, 27, t. i. d.
6/ 8/14	24,400	P., 66; S., 23; L, 4; E., 1; Mz., 8; My., 2.				Fowler's solution, 4.
6/15/14	16,200					Fowler's solution, 4.
6/22/14	6,800	P., 66; S., 28; L., 3; E., 1; My., 2.		60		Fowler's solution, 4.
7/ 6/14	6,700					Blaud's pill, t. i. d.
8/ 3/14	24,000	P., 75; S., 6; L., 8; E., 2; Mz., 1; My., 8.				Blaud's pill, t. i. d.
8/10/14	36,800					Benzol, 20, t. i. d.
8/17/14	26,400	P., 72; S., 10; L., 8; E., 1; Mz., 3; My., 6.				Benzol, 20, t. i. d.
8/31/14	13,600		5,384,000		Fills upper rt. quadrant	Benzol, 20, t. i. d.
9/19/14	15,000	P., 57; S., 24; L., 10; My., 7; Mz., 2.				Benzol, 20, t. i. d.
10/ 3/14	8,200					No medication.
10/31/14	16,400					None.
12/12/14	22,000	P., 52; S., 21; L., 14; E., 1; Mz., 2; My., 10.	6,448,000	84	Fills upper quadrant	Benzol, 20, t. i. d.
1/23/15	18,400	P., 61; S., 16; L., 12; E., 1; Mz., 1; My., 9.				Benzol, 20, t. i. d.
2/20/15	29,200					Benzol, 24, t. i. d.
3/ 6/15	6,600	P., 50; S., 30; L., 15; E., 1; Mz., 1; My., 3.	Two normoblasts in count of 100 white cells			None.
3/13/15	4,400		5,120,000	65	½ in. below navel	None.
3/27/15	13,800					Blaud's pill, t. i. d.

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3. Cheney, W. F.: Leukemia in Childhood, Am. Jour. Med. Sc., 1912, cxliii, 22.

7,000. If the blood curve were ruled graphically, the chart would resemble a fever chart of a disease full of crises: it *is* a series of blood crises. In other words, the leukocytes have all along *stepped up* and *fallen down*. Just how gradual will be the step upwards cannot be calculated: one time in two weeks, another, in eight weeks, perhaps. The drop comes abruptly, but what is more important, "when we least expect it," if such an expression can be allowed.

Nowhere can the last sentence be better illustrated, nor can the potential dangers of the drug be better emphasized, than in the happenings recorded as of between June 1 and July 20, 1914. The patient had been getting the largest doses of benzol he had ever had, and at the end of a course extending over four months, it seemed to be making no impression on the leukocytic curve. So it was stopped, for the double reason that the treatment seemed at last ineffectual, and because I was afraid to continue such large doses. My surprise and interest was keen, then, to note a drop from 24,000 to below 7,000. The cells remained at or near this point on no benzol at all for six weeks. There seems but one explanation available, and that just now suggested: After an indefinite time and after an uncertain degree of saturation has been reached, the leukopoietic tissues seem not only to become immune to benzol, but are actually stimulated by it.

The effect of this experience is to cause doubt as to how to handle the drug when the count stays high when we are pushing it. Shall we stop, or shall we continue? I feel that if the patient has already been taking benzol for several weeks and the curve is still ascending, or even at a standstill, the safest plan is to stop it for awhile. The drop may come then. At any rate, one cannot get away from the reported cases in which, under benzol, the leukemia assumed a fulminant form, and the patient rapidly succumbed. Whether or not these flare-ups are due to the benzol is not clear; but there is a type of benzol poisoning which is certain: a practical loss of leukocytes with aplastic anemia superadded.

The leukocytes in stained smear are interesting. The appearance of the white cells indicates degeneration. It is hard to make a satisfactory count; transition forms, difficult to classify, are frequent. This, I believe, is a direct result of the benzol therapy. At least, I have never noted just this difficulty before. At any rate, myelocytes have been present in every smear examined. The red-blood-making tissue has never suffered objectively, unless it be in the last crisis, when for the first time a rare normoblast was found. Yet one must always sense the lurking danger.

Myers and Jenkins'[4] observation of the fluctuation of the size of the spleen, without any regular relation to the fluctuations in the blood count, has ample confirmation in my case. One cannot argue that because the count is normal, the spleen is not palpable, or the reverse.

From my experience I believe that benzol poisoning will be first indicated in the blood in some one of its phases. Though I have been constantly on the watch for other toxic manifestations, I have seen none. It is curious to relate that this boy has seemed for one and one-half years to be normal subjectively. He has never complained, except of frequent "head" and bronchial "colds." These have been as frequent when off as when on benzol. Otherwise his general condition does not seem to vary, whether his leukocyte count is high or low, whether he is taking benzol or not. We still have no proof that benzol is specific. Of one thing I feel certain: it has not, and it will not "cure" in this case. One may doubt whether such dogmatism is ever proper. Suppose the dose were raised? I believe that benzol poisoning would follow, nor is there reason to believe the case would be any nearer a cure for the risk. There is not the constant decrease of the size of the spleen, nor the constant falling off, to disappearance, of the myelocytes that would be expected were the drug's specificity dependent on a higher dose than any I have ventured.

In doubting its specific properties I admit a great disappointment. I had hoped that one more of the number of incurable diseases was soon to give way before specific therapy. Instead of this hope, I am confidently looking forward to the time when in spite of, if not because of, benzol, this patient's leukemia will assume one of three forms: a chronic progression upward of the leukocyte curve, a constant enlargement of the spleen, and ultimate death, just as if there had been no staying treatment, or an acute fulminant picture, in which the increase of the leukocytes will be by leaps and bounds to a high figure; or, on the other hand, a drop in the leukocyte curve will come, will not stop at the normal line, but will continue downward to 500 or thereabouts, with all the other evidences of aplastic anemia.

When all is said, however, concerning the disappointment in train of this experience, and of the dangers that lurk in its unguarded and largely empiric use, the chemical has a most remarkable *inhibiting influence* on the course of the disease. There is no exact analogy that I can think of. Like digitalis, however, benzol may have a distinct place in therapy, even if its action prove short of specific, and merely symptomatic, staying or inhibitory.

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[4] Myers, J., and Jenkins, T.: Benzol in the Treatment of Leukemia, abstr., The Journal A. M. A., May 17, 1913, p. 1575.

The Scope of Embryology.—The development of the egg has always cast a peculiar spell on the scientific imagination. As we follow it hour by hour in the living object we witness a spectacular exhibition that seems to bring us very close to the secrets of animal life. It awakens an irrepressible desire to look below the surface of the phenomena, to penetrate the mystery of development. The singular fact nevertheless is that during the phylogenetic period of embryological research this great problem, though always before our eyes, seemed almost to be forgotten in our preoccupation with purely historical questions—such as the origin of vertebrates or of annelids, the homologies of germ-layers, gill-slits or nephridia, and a hundred others of the same type. Now, these questions are and always will remain of great interest; but embryology, as at last we came to see, is but indirectly connected with historical problems of this type. The embryologist seeks first of all to attain to some understanding of development. It was therefore a notable event when, in the later eighties, a small group of embryologists headed by Wilhelm Roux turned away from the historical aspects of embryology and addressed themselves to experiments designed solely to throw light upon the mechanism of development. The full significance of this step first came home to us in the early nineties with Driesch's memorable discovery that by a simple mechanical operation we can at will cause one egg to produce two, or even more than two, perfect embryos. I will not pause to inquire why this result should have seemed so revolutionary. It was as if the scales had fallen from our eyes. With almost a feeling of shock we took the measure of our ignorance and saw the whole problem of development opened.—Edmund B. Wilson, *Science.*

GASTRO-INTESTINAL STUDIES

V. THE PROTEIN CURVE OF GASTRIC DIGESTION IN NORMAL AND PATHOLOGIC CASES *

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TECHNIC OF THE REACTION AND FALLACIES OF THE TEST

Within recent years considerable interest has been shown in the study of the protein content of the gastric juice owing to the application of methods for the determination of this content in arriving at a differential diagnosis of carcinoma of the stomach and benign achylias. But little interest was manifested in the importance of the protein content in other conditions in which the acidity was present or pronounced. Furthermore, all methods which were evolved toward a solution of this problem considered the protein content merely from the point of view of a single phase in the gastric cycle. By means of a method recently devised by one of us, it has been possible to study the protein content systematically in every phase of digestion and to obtain data of importance. We have made a study of the principles underlying the reaction and shall endeavor to point out the fallacies connected with the ordinary method of examination. The regular Wolff technic[1] was used with slight modifications, but instead of testing the protein content at the one-hour interval, we tested specimens[2] throughout the entire period of digestion.

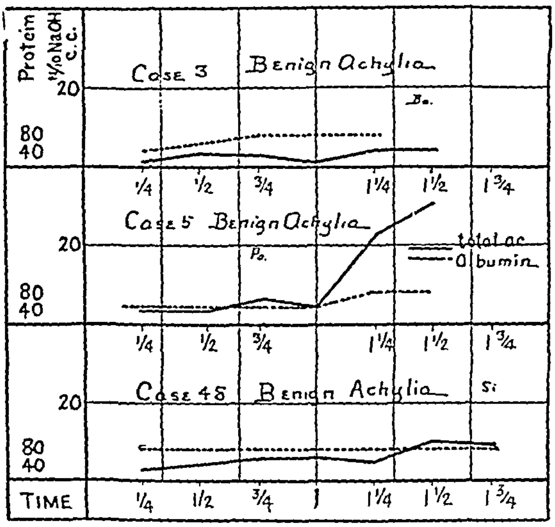

Chart 1.—Total acidity and albumin curves in three cases of benign achylia.

Readings were immediately made and the tube giving a ring at the greatest dilution of gastric juice was recorded.[3] In every instance it was desirable to perform the test under conditions which were as constant as possible, and for that reason readings were always made against a dark background. If the tubes were left standing for fifteen minutes or longer it was remarked that solutions of even greater dilution than the one recorded were capable of giving a ring. The importance of immediate examination is therefore insisted on. A second point should be brought out. The stomach should be empty. One of us[4] pointed out elsewhere that even normally a large residue is often found which may in certain pathologic cases assume exaggerated proportions.

In certain experiments (which one of us performed with Drs. Bergeim and Hawk) made in this laboratory, it was remarked that even relatively simple articles of diet such as eggs, combined with cereals and milk, may remain for relatively long periods in the healthy stomach. To commence a test five hours after such a diet will show, even in a certain number of normal individuals, an initial high protein content owing to the dissolved proteins still remaining in the stomach.

Case 23, for instance, demonstrates the results obtained when the test was performed too soon after the individual had ingested a meal of fish and vegetables. In this case the test was purposely performed at that time and the resulting figures show the unmistakable presence of protein residue. *If, therefore, high figures are obtained when the stomach should be empty, in the absence of other factors which we shall point out, an initial very high point is indicative of protein retention.*

Another point is worthy of consideration. The patient is warned to be particularly careful about swallowing oral and bronchial secretions.

An estimation of the protein content of saliva in six normal individuals showed that it gave a reaction in five cases at 1:80 and in one case for some unknown reason at 1:160. These figures can be greatly surpassed in the sputum encountered in certain pulmonary cases, and it is an everyday observation that these individuals swallow much of their sputum.

NATURE OF THE PROTEIN REVEALED BY THIS METHOD

The protein on various occasions found in the gastric juice must come from a variety of sources. Briefly enumerated it may come from food ingested, saliva or bronchial secretions swallowed, bleeding owing to an ulcerative lesion, regurgitation of intestinal contents, and finally *in cases in which there is a gastric lesion, from specific protein products derived from the lesion itself.*

That the pure gastric juice derived from normal individuals contains but little protein must be evident from the fact that on various occasions the juice obtained from normal individuals after the administration of a water meal (a test meal consisting of 200 c.c. of water which is aspirated at intervals) never showed a protein content exceeding 1:40. This is significant inasmuch as it indicates that the pure normal juice has a very low protein content, any increase of which must be of pathologic importance. But the customary Wolff test is performed by administering the ordinary Ewald test-meal and testing at the one-hour interval. Concerning this method we have some data from Wolff,[5] Einstein,[6] and Rolph[7]; the results, however, of testing merely one phase of the digestive curve is obviously wrong. It merely registers a single point in the whole mechanism of gastric digestion and gives no information regarding the elaboration of the protein, a point not without importance.

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* From the Laboratory of Physiological Chemistry of the Jefferson Medical College.

[1] Wolff: Magen und Darmkrankheiten, Berlin, 1912, p. 217.

[2] These specimens were obtained by means of the fractional tube which one of us (Rehfuss: Am. Jour. Med. Sc., June, 1914, p. 848; New York Med. Jour., Aug. 22, 1914. Rehfuss, Bergeim and Hawk, The Journal A. M. A., Sept. 12, 1914, p. 909) devised. Specimens were obtained in this way at fifteen-minute intervals, and at five-minute intervals during the first fifteen minutes. One c.c. of the filtered juice was then diluted with 9 c.c. of water representing a dilution of 1:10; 5 c.c. of this mixture was again added to 5 c.c. of distilled water and a dilution of 1:20 obtained; this was again repeated, using 5 c.c. of the mixture last obtained and 5 c.c. of distilled water, and the dilutions were kept up until a series was obtained representing 1:10, 1:20, 1:40; 1:80, 1:160, 1:320, and if necessary 1:640 or more. They were then stratified with approximately 1 c.c. of the Wolff phosphotungstic acid reagent, care being taken that the liquids did not mix.

[3] This reagent consists of phosphotungstic acid, 0.3 c.c.; conc. hydrochloric acid, 1.0 c.c.; alcohol, 95 per cent., 20.0 c.c.; distilled water q. s., 100.0 c.c.

[4] Rehfuss, Martin E., Bergeim, Olaf, and Hawk, Philip B.: The Question of the Residuum Found in the Empty Stomach, The Journal A. M. A., July 4, 1914, p. 11.

We therefore made studies (1) to determine if possible the actual content of the test meal and its fluctuation during digestion, and (2) the modification of this curve in normal and pathologic cases. These latter are recorded merely in the hope that a possible interpretation may be obtained for some of the curious phenomena recorded.

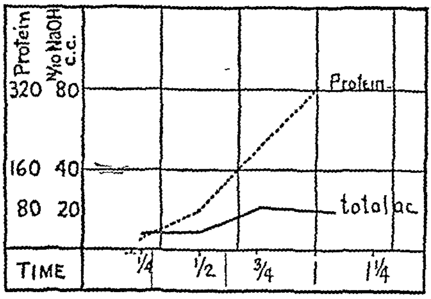

Chart 2.—Protein and total acidity curves in a case of gastric carcinoma.

We found that tea alone gave no reaction even at a dilution of 1:10, and that a regular Ewald meal consisting of 8 ounces of tea and two pieces of toast gave a reaction at 1:20, immediately after thorough maceration. After standing for fifteen hours in the incubator at 38 C. (100.4 F.) a reaction of 1:40 was obtained showing that there was practically no autodigestion. A solution of pepsin without hydrochloric acid gave no protein reaction whatever.

We then performed experiments to study the action of the artificial gastric juice in vitro. The macerated Ewald meal was treated by an artificial gastric juice made by dissolving 0.5 gm. of pepsin in 0.2 per cent. hydrochloric acid. The artificial juice failed to give a reaction at 1:10. This mixture was then put in the incubator at 38 C. and samples were taken at the same time intervals as were employed in taking specimens from the stomach with the fractional tube. The following results were typical of those obtained on three separate occasions:

5 minutes	1:40
10 minutes	1:80
15 minutes	1:80
30 minutes	1:160
45 minutes	1:160
60 minutes	1:160
75 minutes	1:320
90 minutes	1:320
105 minutes	1:320
120 minutes	1:320
18 hours	1:1,080

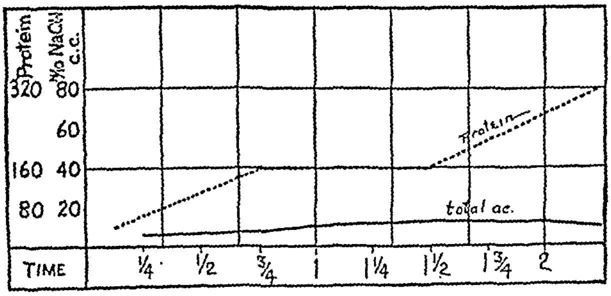

Chart 3.—Protein and total acidity curves in a case of gastric carcinoma.

Therefore we see that using this method we obtain a protein in gradually increasing quantities more or less directly proportional to the strength of the acid and the duration of the reaction and directly dependent on the soluble intermediate protein bodies formed through the action of the artificial gastric juice on the proteins of the bread. In each case there was a gradual rise as the continued action of the gastric juice made itself felt on the bread proteins. *If, therefore, the gastric mucous membrane is absolutely normal and there are no extrinsic sources of albumin, the protein curve should follow the acid curve and in the absence of acid should remain very low.* In other words, depending on the elaboration of acid, there should be a definite elaboration of soluble protein.

DIAGNOSIS OF CANCER FROM BENIGN ACHYLIA BY THIS METHOD

In an ordinary benign achylia, as seen in Case 5 and in Cases 24, 48 and 49, the albumin curve runs more or less parallel to the acid curve. Even in the subacidities due to benign causes the same rule holds true, and the albumin content remains comparatively low. Smithies,[8] Wolff[5] and others found that figures of 1:100 were suspicious and above this, point out positive evidence of neoplasm, but the actual evolution of the albumin curve was not worked out. We found that *in carcinoma the protein curve diverges from the acid curve, and as digestion progresses this disproportion increases so that there is a marked separation of the curves.* This is seen in the cases recorded (Cases 22, 26, 30 and 27) in which there was practically an achylia and in which in every instance, subsequent events and roentgenoscopy confirmed the diagnosis that the protein curve was entirely disproportionate to the acid curve. Secondly, that this increase in albumin concentration occurred as digestion proceeded suggested that there was an elaboration of protein on the part of the neoplasm per se. In other cases in which the neoplasm was accompanied by a demonstrable acidity, the protein was generally high with a tendency to become higher as digestion proceeded. Protein retention will result in high initial figures, but if the precaution is taken to empty the stomach before testing, this factor is disposed of. In the question of the differential diagnosis between cancer and benign achylia we wish to report two cases of considerable interest, which show how important it is to interpret the findings correctly.

Case 12.—A man, aged 44, suffering from gastric disturbances for many years, showed in the last few months before admission rather marked anorexia, profound anemia, a tendency to daily vomiting of yellowish material and mucus. He has lost distinctly in weight, and his anemia left him very weak, with paresthesias of the hands and feet. With the exception of intervals of mucus colitis, he has had rather marked constipation. The expectoration, which is pronounced, is free from tubercle bacilli, but contains many staphylococci, *Micrococcus catarrhalis* and a streptococcus. Physical examination as well as roentgenography fail to reveal anything in the lungs except a little thickening of the hilus of the right lung. From the character of the sputum, its persistence and the physical findings, we still thought (with Dr. Beardsley and Dr. Tracey of Beverley, to whom we were indebted for the case) that there must be bronchiectasis. Examination of the blood showed profound

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[5] Wolff: Berl. klin. Wchnschr., May 29, 1911; March 18, 1912.
[6] Einstein: Med. Klin., March 24, 1912.
[7] Rolph: Med. Rec., May 10, 1913, p. 848.
[8] Smithies: Am. Jour. Med. Sc., May, 1914, p. 713.

DIGESTION TESTS IN FORTY-NINE CASES OF VARIOUS DISORDERS OF THE GASTRO-INTESTINAL SYSTEM

Case	Diagnosis	Results in Minutes																																
		5			10			15			30			45			60			75			90			105			120			135		
		Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.	Gm.	Tot. Ac.	Free Ac.
	Control: Bread Digestion in vitro	40	....	....	80	....	....	80	....	....	160	....	....	160	....	....	160	....	....	320	....	....	320	....	....	320	....	....	320	....	....	...	....	....
1	Mg. Atony	10	1.5	0.0	...	....	....	80	4.0	0.0	160	18.0	9.0	160	21.5	15.5	320	10.0	27.5	80	55.5	10.5	80	65.5	47.5	...	....	....	...	....	51.0	...	....	....
2	Bk. Gastroptosis, intestinal adhesions	10	15.5	5.5	10	10.5	5.0	10	9.0	4.5	...	15.5	....	160	29.5	12.0	...	60.0	....	160	61.0	....	80	....	....	...	....	....	...	....	....	...	....	....
3	Ba. *Benign achylia*	...	....	....	...	....	....	40	1.0	0.0	...	3.0	0.0	80	2.5	0.0	...	1.0	0.0	80	4.0	0.0	...	4.0	0.0	...	....	....	...	....	....	...	....	....
4	Co. Pulmon. tuberculosis	320	2.4	1.8	320	2.6	1.9	320	13.0	10.5	160	21.0	20.0?	...	....	....	80	31.0	19.0	40	32.0	20.0	...	....	....	...	....	....	...	....	....	...	....	....
5	Po. Benign achylia	40	0.0	0.0	...	4.1	0.0	...	3.0	0.0	40	3.0	0.0	40	6.0	0.0	40	4.0	0.0	80	23.0	0.0	80	31.0	Tr.	...	....	....	...	....	....	...	....	....
6	Wa. Chlorotic ulcer	80	2.0	0.0	160	3.0	0.0	160	4.0	0.0	80	4.5	0.0	80	11.0	4.0	80	20.0	8.0	80	13.1	8.2	80	10.5	8.0	...	....	....	...	....	....	...	....	....
7	Id. Gastric ulcer?	160	10.5	6.0	160	19.5	10.5	...	23.0	20.5	...	23.0	....	160	43.5	20.0	...	47.0	....	320	43.0	32.0	...	41.0	29.0	...	....	....	...	....	....	...	....	....
8	Co. Hyperacidity, lead colic	10	2.0	0.0	40	20.0	13.0	40	33.5	25.5	80	53.0	41.5	160	68.5	61.0	80	100.0	91.0	80	102.0	85.0	10	62.0	76.0	10	22.0	15.5	...	....	....	...	....	....
9	Cha. Duodenal ulcer	20	11.0	4.0	40	15.0	7.0	160	32.0	25.0	...	53.0	....	...	....	....	...	101.5	70.0	...	83.0	73.0	...	80.5	72.0	...	....	....	...	....	....	...	....	....
10	Ga. Atony	...	3.0	*0.0*	80	12.0	*5.0*	80	15.0	*0.0*	...	47.0	32.0	80	....	....	...	71.0	....	...	....	....	...	....	....	...	....	....	...	....	....	...	....	....
11	Ke. Gastric ulcer	40	18.0	....	160	32.5	....	320	....	....	...	....	....	80	15.5	....	40	60.5	....	80	53.0	....	40	37.0	....	...	....	....	...	....	....	...	....	....
12	Ka. Achlorhydria, hemorrhagica gastrica	...	1.0	0.0	20	1.0	0.0	10	1.0	0.0	...	1.5	0.0	320	4.0	0.0	...	4.0	0.0	...	5.0	0.0	...	....	....	...	....	....	...	....	....	...	....	....
13	After treatment	...	....	....	...	....	....	160	11.0	0.0	160	33.0	0.0	160	....	....	...	55.0	Tr.	...	....	....	...	....	....	...	....	....	...	....	....	...	....	....
14	Wt. Gastric ulcer	80	14.5	0.0	320	19.0	0.0	320	24.6	16.0	320	24.7	17.0	320	31.9	19.0	320	35.0	25.0	160	30.0	27.0	80	30.0	20.0	80	32.0	23.0	...	....	....	...	....	....
15	De. Gastric ulcer	160	....	....	160	....	....	160	....	....	320	....	....	320	....	....	320	....	....	320	....	....	320	....	....	160	....	....	160	....	....	...	....	....
16	Far. Gastric ulcer	160	19.0	11.0	160	26.0	19.5	320	33.0	20.5	...	51.5	....	...	99.0	71.0	...	80.0	....	...	72.0	....	...	54.5	....	...	70.5	....	...	87.5	69.5	...	....	....
17	K. Ptosis, spastic constipation	40	7.0	2.0	80	10.5	6.0	160	22.5	16.0	160	32.0	19.5	...	47.0	20.0	...	50.0	29.5	...	64.0	37.0	320	57.0	42.5	160	53.0	....	80	25.0	22.5	...	....	....
18	K2. Gastric ulcer	320	....	....	320	....	....	320	35.0	27.0	320	30.0	....	320	57.5	34.0	320	71.5	45.5	320	88.0	68.5	160	90.0	....	160	80.0	67.0	160	76.0	67.5	...	....	....
19	Sch. Duodenal ulcer	20	9.0	7.0	40	10.0	7.5	160	29.5	17.5	320	78.5	59.0	160	85.0	64.0	...	84.0	....	...	....	....	...	....	....	...	....	....	...	....	....	...	....	....
20	Wal Chronic gastric ulcer	...	4.5	3.0	160	19.5	12.0	160	61.5	40.0	320	62.5	....	320	58.0	44.0	160	33.0	24.0	...	65.0	48.0	160	54.0	44.0	...	50.0	43.5	160	....	....	...	....	....
21	Sy. Chronic catarrh, nephritis	...	....	....	...	....	....	80	3.5	0.0	160	24.3	0.0	160	23.7	0.0	160	31.0	0.0	160	19.2	0.0	160	15.3	0.0	80	21.5	0.0	80	18.5	0.0	80	26.7	0.0
22	Ch. Carcinoma	80	4.0	0.0	80	6.0	0.0	80	7.0	0.0	80	9.0	0.0	160	10.0	0.0	160	10.0	0.0	320	19.0	0.0	...	20.0	0.0	...	22.0	0.0	...	6.0	0.0	...	....	....
23	Gi. After fish meal	...	....	....	320	59.1	21.7	320	29.4	8.7	...	29.1	....	160	16.2	5.4	160	25.0	5.2	...	....	....	...	....	....	...	....	....	...	....	....	...	....	....
24	Mrs.Hi. Chronic gastritis	...	4.0	0.0	20	4.0	0.0	20	5.0	0.0	20	7.0	2.0	40	11.0	2.0	80	29.0	6.0	...	30.0	2.0	...	6.0	....	40	....	....	...	....	....	...	....	....
25	Hy. Cardiac ulcer	40	1.4	0.0	320	20.5	0.0	...	....	....	...	43.0	9.2	320	75.0	44.3	320	77.5	47.0	320	80.0	59.7	...	....	....	320	99.0	61.4	...	....	....	...	....	....
26	Br. Achylia	40	11.7	0.0	40	13.7	0.0	40	11.1	0.0	80	....	0.0	...	12.8	0.0	...	....	0.0	...	....	0.0	...	....	0.0	...	....	0.0	...	....	....	...	....	....
27	Al. Carcinoma	...	....	....	20	4.0	0.0	20	7.0	0.0	80	9.5	0.0	...	21.0	0.0	320	low	....	...	....	....	...	....	....	...	....	....	...	....	....	...	....	....
28	Ri. Nephritis, subacid gastritis	80	13.5	0.0	...	....	....	160	24.3	0.0	160	15.3	0.0	...	....	....	160	22.1	0.0	160	15.2	0.0	160	13.2	0.0	160	....	....	...	....	....	...	....	....
29	Cl. Gastroptosis, duodenitis	...	....	....	40	....	....	40	....	....	160	....	....	160	....	....	320	....	....	320	....	....	80	....	....	160	....	....	160	....	....	...	....	....
30	Fa. Carcinoma of pylorus	...	....	....	80	....	....	80	9.5	Tr.	160	13.5	Tr.	...	....	....	320	38.0	27.3	640	....	....	1080	64.0	30.4	1080	52.0	24.4	1080	43.6	25.6	...	....	....
31	Gy. Stomach adhesions, operation	...	....	....	...	....	....	...	40.7	18.5	...	47.0	....	320	50.3	25.6	320	48.2	25.9	320	43.5	25.0	320	42.7	24.3	320	44.9	25.7	320	48.5	28.5	...	....	....
32	El. Pyloric obstruction, benign	...	....	....	...	....	....	320	43.2	27.2	320	62.1	28.8	320	69.3	31.5	320	82.7	29.8	320	89.0	47.7	320	85.5	51.3	320	86.0	41.0	320	82.0	40.0	...	....	....
33	Ca. Probable carcinoma	40	10.5	4.3	40	9.0	6.0	40	12.9	11.5	80	14.1	9.3	160	26.9	13.0	320	42.2	21.0	320	46.5	22.0	320	58.5	23.5	...	....	....	...	....	....	...	....	....
34	McE. Duodenal ulcer	160	33.0	17.7	320	42.0	14.5	640	60.5	19.5	640	96.5	42.5	320	118.5	57.5	...	90.0	62.3	...	56.0	18.5	hypersecretion			hypersecretion			hypersecretion			...	....	....
35	Du. Infected gastritis purpura	20	5.5	0.0	...	....	....	...	7.5	0.0	80	7.0	0.0	80	8.0	0.0	160	11.0	0.0	320	14.1	0.0	640	11.9	0.0	...	....	....	...	....	....	...	....	....
36	Pb. Duod. ulcer with probable adhesions	80	16.8	10.2	160	21.8	9.0	320	23.0	9.3	...	27.3	12.2	...	22.1	10.0	...	....	....	...	35.5	21.0	...	....	....	160	53.4	34.5	160	42.4	25.7	320	72.5	46.6
37	Fo. Susp. but Neg. Gas. Carcin.	80	12.5	6.0	160	....	....	160	17.7	7.0	160	25.3	18.5	160	36.3	14.7	160	31.4	17.3	...	....	....	160	33.5	....	...	....	....	...	....	....	...	....	....
38	McF. Catarrhal jaundice	...	....	....	80	20.0	17.5	160	23.5	17.0	320	48.0	36.5	320	67.0	58.5	640	70.0	61.0	160	53.5	50.5	160	50.0	42.0	80	31.5	22.0	...	....	....	...	....	....
39	Ha. Duodenal ulcer	...	....	....	320	....	....	320	....	....	320	....	....	160	....	....	160	....	....	160	....	....	160	....	....	...	....	....	...	....	....	...	....	....
40	Wx. Adhesions	...	....	....	...	61.0	27.5	...	76.5	14.1	160	69.7	55.4	160	51.2	40.0	160	61.4	50.0	320	70.8	55.0	320	83.8	67.8	...	....	....	...	27.2	....	...	....	....
41	Bi. *Ulcer, carcinoma*	160	4.5	0.0	160	6.0	0.0	320	12.0	0.0	640	58.3	18.5	...	....	....	320	73.7	50.2	320	95.8	72.1	320	95.0	75.7	320	68.0	49.5	...	77.0	....	320	48.8	32.2
42	Lo. Hyperacid gastritis	80	....	....	160	....	....	640	....	....	640	....	....	640	....	....	...	....	....	320	....	....	320	....	....	320	....	....	160	....	....	160	....	....
43	Bs. No diagnosis	80	1.0	2.0	...	....	....	320	30.0	8.7	320	27.8	9.1	640	41.2	14.7	640	40.0	11.5	...	....	....	...	....	....	320	....	....	...	33.0	13.5	...	....	....
44	Rg. Susp. Carcin., not proved	...	30.2	9.4	...	....	....	320	42.8	19.7	320	53.6	16.5	320	51.2	20.4	320	51.0	21.6	320	43.2	17.2	...	....	....	320	41.0	20.3	320	47.0	22.9	...	....	....
45	St. Cholelithiasis?	160	28.2	13.2	...	....	....	160	23.8	13.2	...	37.5	19.1	...	52.5	26.3	320	47.3	30.0	...	41.7	28.6	160	26.5	14.2	320	48.0	27.4	320	49.0	27.0	...	....	....
46	Pr. Duodenal ulcer	...	....	....	20	4.0	0.0	20	6.8	0.0	160	39.7	21.6	160	54.9	38.0	...	....	....	...	87.0	....	...	81.3	59.3	40	79.0	59.0	40	....	....	...	....	....
47	Ka. Carcinoma	...	....	....	40	2.0	0.0	...	5.0	0.0	...	....	....	160	7.0	0.0	...	9.0	0.0	...	....	....	160	14.8	0.0	...	....	....	...	12.9	0.0	320	10.0	0.0
48	Si. Pericholecystitis	...	....	....	...	....	....	80	....	....	...	....	....	80	....	....	80	....	....	...	....	....	40	....	....	...	....	....	...	....	....	...	....	....
49	Ba. Benign achylia	...	....	....	...	....	....	40	....	....	...	....	....	80	....	....	80	....	....	...	....	....	80	....	....	...	....	....	...	....	....	...	....	....

anemia, but none of the true findings of pernicious anemia. An analysis of the gastric juice showed a total achylia persisting throughout the entire digestive cycle and absolutely no ferment response, occult blood positive, many smaller micro-organisms, but no lactic acid and no Oppler-Boas bacilli. The protein result is shown in No. 12 in the table. The sudden jump was synchronous with the appearance of bleeding and therefore was not due to the elaboration of the protein through a specific neoplasm, but to the protein in the blood exuded. Two things decided us against the diagnosis of neoplasm—first, the long duration of the case; secondly, the absence of any Roentgen-ray or palpatory evidence in the face of such a pronounced gastric finding. The case, which will be reported, is of the greatest interest. Suffice it to say, that by means of intragastric, dietetic and certain internal glandular medication, there was steady improvement with a disappearance of the gastric symptoms. A vaccine was made for the expectoration, and at this writing, after the fifth administration of the vaccine, the expectoration has disappeared, and the patient is 3 pounds over his best weight.

This case demonstrates forcibly the danger of taking the protein content at a given point and deciding for or against carcinoma of the stomach. Case 35 is similar, a direct infection of the stomach in a subject with purpura hemorrhagica, in which the presence of blood has caused a marked increase in the protein content. But in carcinoma, *the protein continues to increase until the end of digestion.* Case 22 is one in which there was a large inoperable carcinoma in the wall of the stomach. Case 27 is a similar case showing a gradual, steady and exaggerated rise in protein content. Case 30 shows to what extent this might go in carcinoma of the pylorus. In this case the retention liquid in the empty stomach was filled with a purée of leukocytes amounting to diluted pus; this was undoubtedly due to the ulceration of the neoplasm.

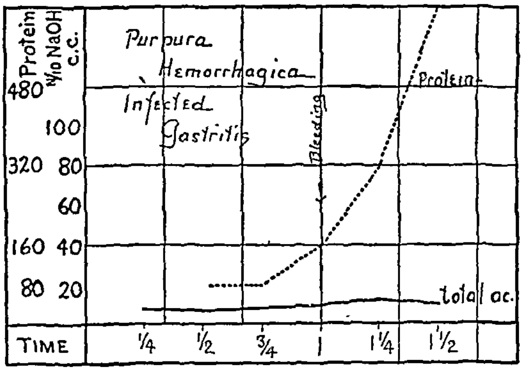

Chart 4.—Protein and total acidity curves in a case of purpura hemorrhagica.

DIAGNOSTIC VALUE OF THE PROTEIN CONTENT IN ULCERATIVE CONDITIONS OF THE STOMACH

We made a series of protein determinations on cases of clinically diagnosable ulcer, all of which had been submitted to careful physical examination and in most cases, roentgenoscopy. We found an altogether unusual protein curve in these cases, namely, a rapid rise in the protein concentration out of all proportion to the protein elaborated by the action of any juice in this period of time, arguing, therefore, for an extrinsic cause for the protein. This is to be seen in practically all cases on this list in which the diagnosis of ulcer was made, and the type of the protein curve in contrast to the acid curve is striking. Case 6 shows the very early initial rise. This was an undoubted case of gastric ulcer, showing the characteristic tender point, pain, and occult blood in both gastric contents and feces, and marked secondary anemia. The presence of the occult blood may be the cause for the phenomenon. In Case 8, which several clinicians thought one of gastric ulcer, the absence of characteristic symptoms, the absence of the minutest traces of bleeding, and the character of the curve enabled us to rule out ulcer. This was justified by the subsequent course of the case. Case 11, although the data are not complete, is in all probability one of ulcer, there being occult blood at times in the movements on a meat-free diet. Case 14 shows the recurrent pain, characteristic tender point, slight tendency to rigidity of the upper right rectus, persistent history of ulcer, and alimentary hypersecretion. Case 15 shows the persistently high protein content from a case of bleeding ulcer. The history is of long duration, characteristic pain, hematemesis, tender point, occult blood in the gastric contents and stools, and the early symptoms of gastric retention. Hypersecretion followed the meal and was pronounced. This liquid, which was found free from food residues, showed a protein content of 1:160, entirely different from the normal gastric juice. This was salted out with ammonium sulphate and filtered, and the albumin content dropped to 1:40, suggesting very strongly serum albumin probably derived from blood, as the cause of the high content. Case 16 was a typical case of ulcer with two severe attacks of hematemesis very large in amount, characteristic pain, both alimentary and continued hypersecretion, a tender point, and profound anemia from hemorrhage. Case 18 is one of pyloric ulcer with obstruction and retention, showing the very high point from the very first sample, undoubtedly due to protein retention. Cases 9 and 19 were cases of duodenal ulcer. Case 20 alone was puzzling, characteristic ulcer symptoms alternating with periods of relief. The case was most likely ulcer, high acid figures and hypersecretion playing an important part, although the evidence here renders the diagnosis uncertain. These cases are merely presented as showing a striking protein curve in cases of ulcer. Whether this is a constant finding, we are not prepared to state. We merely wish to submit these results for further investigation, believing that the high protein curve which does not occur in ordinary cases suggests the possibility of ulcer. As to the cause of this rise, whether it is due to bleeding, or hypothetically to exudation of protein products from the ulcer region, or to the action of the corrosive juice on the ulcer, we cannot say. Some further results seem to show that while the high protein content remains sustained in gastric ulcer, in duodenal ulcer there is an initial rise which apparently falls off more rapidly, possibly owing to the hypermotility encountered in a certain proportion of the cases of the latter disease. As yet we have insufficient data to make a definite statement, but in those cases in which the diagnosis was made the rise of the curve to its high point was slower.

METHOD OF INTERPRETATION OF THE RESULTS OF THE REACTION

In interpreting any protein curve, the question arises as to the quantity and source of the protein. We have pointed out that, normally, in the absence of any extrinsic factor, the quantity of dissolved protein runs more or less parallel to the duration of time in the stomach and the acidity. Any marked deviation must therefore be accounted for. On the basis of this finding rests the value of the test for diagnostic purposes. If the protein curve simply follows the acid curve, it merely represents the action of the gastric juice on the bread ingested, and may be taken as an index of gastric function. This is already given in the acid curve. But abnormal or pathologic possibilities exaggerate the curve out of all proportion to the acid curve, either in the very beginning, during, or at the termination of the curve. Therefore, if bread alone can only give us a definite amount of protein within a definite time, an exaggerated quantity or the presence of high figures must mean that the protein comes from other sources than bread. In the present work, the separation and recognition of the different forms of protein has not seemed practical for routine work. The method of interpretation has been based on a comparison of the acid and protein curves. It is therefore perfectly evident that a certain protein concentration in a given time can be produced from a standard meal. What are the extrinsic sources of protein? These may be (1) blood; (2) the presence of pus either intragastric in origin or swallowed; (3) the end-products of protein digestion still in the stomach through atony or obstruction; therefore stasis, lack of motor tone or actual obstruction may unduly increase the protein concentration, all of which are removed by emptying the stomach before administering the meal; (4) a possible exudation of lymph or serum from ulcer; (5) the exudation from a malignant lesion. These factors should be borne in mind in interpreting the findings. In Cases 2, 8, 1, 10, 13, the findings indicated the absence of ulceration, and the subsequent course of the cases demonstrated the correctness of our diagnosis. In Case 14 the curve indicated strongly the presence of ulcer which would cover all the symptoms of the case. In Case 24, the diagnosis of neoplasm was definitely eliminated on that finding and subsequent events justified the diagnosis. In Case 27, it is evident that an achylia could not produce such a curve unless an added factor such as the ulceration of a neoplasm came into play. In conclusion, we may state that while we do not claim any pathognomonic value for the test, we de believe that it will add another link to the chain of evidence which may decide for or against a given diagnosis.

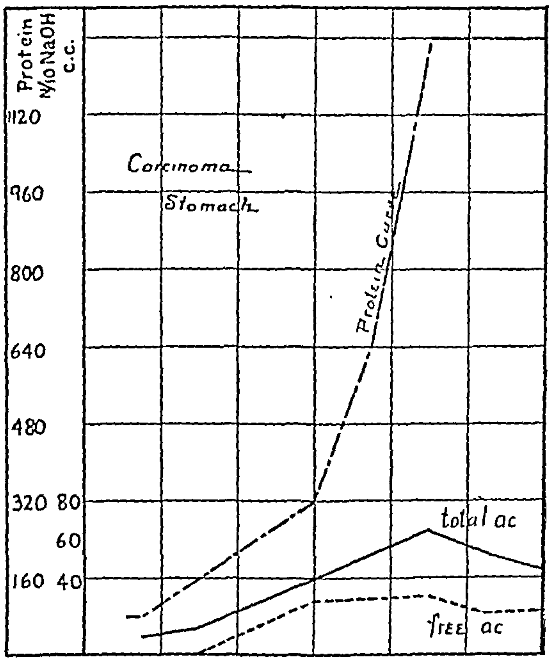

Chart 5.—Protein, total acidity and free acid curves in case of gastric carcinoma.

CONCLUSIONS

1. The gastric juice in health shows definitely a protein content of very low degree.

2. This content is increased in disease by the addition of an exudation of protein material from inflammatory, ulcerous, or carcinomatous mucous membranes, or by the addition of partially digested and retained food residues, or the swallowing of protein material such as certain forms of sputum.

3. Bread and tea alone, following the composition of the Ewald meal, will show in the absence of any pathologic factor a definite amount of protein corresponding to the curve or the digestive power of the juice secreted. A mixture or maceration of bread in tea will show a protein content on 1:20-1:40; if the mixture is acted on by an artificial gastric juice in vitro the protein content of the juice rises steadily within the next two hours and may reach 1:320 in seventy-five minutes. In other words, there is a transformation and liberation of soluble protein which may be demonstrated by the Wolff technic.

4. The pathologic significance arises when a curve shows any marked deviation from this recognized standard, that is to say, when there is an undue concentration of protein out of all proportion to that normally found at that particular phase in digestion. *If therefore a marked increase in protein does not conform in a general way to the acid curve it can be definitely stated that the protein is coming from other sources than the proteins of the bread.*

5. An analysis of the protein would seem to demonstrate that normally it is of the nature of a proteose, but in inflammatory or ulcerative conditions it is probably serum protein removed to a large extent by saturation with ammonium sulphate.

6. We could call attention to the interesting curves found in ulcer, many of which showed traces of blood, several of which can be explained on the basis of protein retention, some of which must be explained on the basis of hypothetic exudation.

7. In the differentiation of achylia and carcinoma, we pointed out that the test was of value in direct proportion as the case approached a true achylia and the added factors (extrinsic) such as swallowed pus, bleeding and protein residues could be ruled out. We likewise pointed out that the one-hour point was insufficient for examination and that the characteristic for carcinoma in these cases is a divergence of the protein curve out of all proportion to the acid curve. Infected catarrh, hemorrhagic erosions, achlorhydria, hemorrhagica gastrica, may give high findings, but they do not have the tendency to give a steadily increasing protein content.

8. We believe that a study of the protein curve may yield information of the greatest value, provided that all the precautions have been observed.

Spring Tonics.—The idea that a "tonic" is needed in the springtime is a mere tradition. Most of such tonics sold to the public are strongly alcoholic, and may prove distinctly harmful.—Health Letter, Life Extension Institute.

THE DIAGNOSIS AND TREATMENT OF INFECTIOUS ENDOCARDITIS

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Since the researches of Poynton and Paine about fifteen years ago which resulted in the isolation of an infectious agent of acute rheumatism, much has been accomplished to elucidate the etiology of infections of the endocardium. Particular interest attaches to the work of Billings, who in 1909 isolated what appeared to be an attenuated pneumococcus in slow endocarditis. Schottmüller,[1] in March, 1910, gave the name of endocarditis lenta to a group of cases which appear to be the same as those described the year before by Billings as due to an organism to which he gave the name of *Streptococcus viridans* on account of its growing with a greenish color on agar. Publications by Libman and Cellar in March of the same year added further interest to this type of endocarditis and it remained for Rosenow[2] to harmonize the bacteriology of the subject by demonstrating that by varying the oxygen pressure in culture mediums the organisms which are frequently the cause of arthritis and endocarditis may be changed culturally and morphologically from one to the other. Rosenow[3] describes three strains of organisms which he changes one from the other, each of which has a marked affinity for certain structures, one hemolytic streptococcus with affinity for the joints, *S. viridans* with affinity for the heart valves, and *S. rheumaticus* which again has a predilection for the joints.

Weight of authority now compels the recognition of that form of chronic infectious endocarditis due to the viridans group as a distinct entity of which there are three types.[4] First, that in which patients develop nephritis and die of uremia. Secondly, that in which is recognized chronic endocarditis with fever, the patients having large valvular lesions, occasional petechiae of the skin and other embolisms, joint symptoms, more or less anemia with a pale skin or more or less pigmentation. Thirdly, that in which the striking feature is a diffuse brown, sometimes quite dark color of the face and some pigmentation on the rest of the body, with more or less anemia, usually palpable spleen and tenderness of the sternum. Baehr[5] describes as characteristic of endocarditis lenta, lesions of the kidney due to septic emboli giving a distinct pathologic picture.

In addition to the viridans group other bacteria may cause endocarditis. Staphylococcus infections[6] may be usually traced to some skin infection —furuncles or felon or some injury to the mucosa as in catheter fever; suppurative metastases are common. Pneumococcus endocarditis may occur with pneumonia; gonorrheal endocarditis is not uncommon. Endocarditis due to influenza has been described by McPhedran[6] and others. Endocarditis may be caused[7] by the meningococcus as a primary lesion. Nankivell[8] describes a case in which he isolated a diplococcus not elsewhere described as a cause of endocarditis. A capsulated Gram-staining diplococcus occurring in chains was isolated by W. H. Smith.[9] Lamb and Paton[10] reported a case of vegetative endocarditis caused by a spirillum. It is to be observed that children under 4 years of age are apparently immune to chronic infectious endocarditis.[11]

Endocarditis may be secondary to articular rheumatism, tonsillitis, pyorrhea, septic endometritis, pyogenic inflammation of the skin and mucous membranes. Experimental appendicitis having been produced with the Poynton and Paine organism would make it appear possible that appendiceal inflammations may figure as a precursor to endocarditis. Endocarditis may follow an acute gastro-intestinal infection. It is, however, difficult in some cases to say whether the cardiac inflammation is secondary to enteritis or whether the abdominal symptoms are not purely toxic in nature from a primary endocardial invasion. There remain further many instances of acute endocarditis in which no discernible lesion has preceded the involvement of the endocardium.

It has been shown in the chronic infectious type of endocarditis[12] that the beginning lesions are subendothelial bacterial embolisms. The valve leaflets being relatively poor in vascularity, the bacteria may grow faster than the leukocytes are able to cause their destruction; there results hemorrhage and the formation of vegetations going on to ulceration. There must be recognized the possibility of resolution before the stage of advanced vegetation formation is reached, as Libman described hearts in which there may be seen areas of active inflammation with other areas where inflammation has subsided with resulting scars. There is no doubt that in fortunate instances, such an inflammation of the valves as may give rise to very definite physical signs may still recover without such scars as result in the impairment of the valve function and, sooner or later, cardiac decompensation.

Leukocytosis, as a rule, will not be found before the stage of ulceration and may not be present when large numbers of bacteria are in the blood.[13] While there may be sufficient inflammation to cause fever and sufficient symptoms to render the patient ill and sufficient endocardial change to give rise to definite physical findings, there may still not be great enough intoxication to call forth a leukocytosis.[13]

It is to be recognized that simple endocarditis differs only in degree from malignant endocarditis, both being of an infectious nature, and that a mild endocarditis may of course become malignant. When such a series of hearts is considered as those which Libman demonstrated in which healing of quite considerable endocardial inflammation has taken place, much encouragement is afforded in the treatment of rather well-marked cardiac inflammations, in which, however, ulceration has not yet taken place nor can bacteria be demonstrated in the blood stream. The following cases are illustrations in point.

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[1] Schottmüller: München. med. Wchnschr., March 22, 1910, p. 617.

[2] Rosenow, E. C.: Studies in Endocarditis and Rheumatism, Journal-Lancet, 1914, xxxiv, 1.

[3] Rosenow: New York Med. Jour., Feb. 7, 1914, p. 270.

[4] Libman, E.: Clinical and Pathological Observations on Subacute Bacterial Endocarditis, abstr., The Journal A. M. A., July 13, 1912, p. 138.

[5] Baehr, G.: Jour. Exper. Med., 1912, xv, 330.

[6] Jochman, G.: Berl. klin. Wchnschr., March 4, 1912. McPhedran: Canadian Med. Assn. Jour., 1913, iii, 572. Flexner: Univ. Pennsylvania Med. Bull., 1903, No. 11. Porrini: Virchows Arch. f. Path. Anat., 1911, cciv, No. 2.

[7] Cecil, Russell L., and Soper, Willard B.: Meningococcus Endocarditis, with Septicemia, Arch. Int. Med., July, 1911, p. 1.

[8] Nankivell: Lancet, London, 1911, ii, 1134.

[9] Smith, W. H.: Boston Med. and Surg. Jour., 1912, clxvii, No. 23.

[10] Lamb, Albert R., and Paton, F. Wade: A Case of Vegetative Endocarditis Caused by a Hitherto Undescribed Spirillum, Arch. Int. Med., September, 1913, p. 259.

[11] Satterthwaite, T. E.: Malignant Endocarditis in New York City, abstr., The Journal A. M. A., June 3, 1911, p. 1678.

[12] Rosenow, E. C.: Jour. Infect. Dis., 1912, xi, 219.

[13] Rosenow, E. C.: Autogenous Vaccine Therapy in Endocarditis, The Journal A. M. A., Nov. 12, 1910, p. 1719.

Case 1.—A previously healthy child, 7 years old, of good family history, complained on the completion of a transcontinental journey, of a slight fever and indisposition. She was seen first two days later after the fever had disappeared, the child not having regained her wonted spirits. On examination she appeared rather pale and apathetic. Physical examination showed normal conditions except the heart; its action was *forcible and rapid*, pulse rate 120 a minute, regular, no cardiac enlargement, left margin extending to the left of the nipple line. There was a soft systolic murmur with the sound at the apex, and a soft systolic murmur at the pulmonic area. The throat, skin, mucous membranes and joints were normal, leukocytes 4,000, red cells 5,000,000, the urine was normal, no red cells.

The following day the heart had dilated so that the left margin was 1½ inches outside the left nipple line, the pulse rate had dropped from 120 to 82 a minute with marked irregularity due apparently to extraventricular systoles. Every second, third, fourth, fifth, eighth and tenth successive impulse the beat would be missed at the wrist, the average being a dropped beat for every fourth impulse. This irregularity continued with gradual improvement so that by the end of the next forty-eight hours the left margin of the heart was only ¼ inch outside the left nipple line and the pulse at times was regular. By the end of four weeks with gradual improvement the pulse was practically regular. During the next two weeks, however, skipped beats occurred about half the time. During the fifth week irregularity occurred again, the average being five beats dropped in a minute, then regular again for three weeks when an average of six beats was dropped in a minute during the course of one day. Again a period of regularity for a week when two days occurred in which from four to six beats would be dropped in a minute at times. From then on until the end of the seventh month the pulse remained regular. The temperature throughout showed physiologic variations; cardiac murmurs varied more or less from time to time depending largely on nervous influences. The patient was kept rigidly horizontal in bed. The pulse rate for the first three weeks was rather low, that is between 68 and 100, after averaging about 100 a minute, ranging from 80 to 110, but as a rule in the neighborhood of from 100 to 104.

Convalescence was otherwise uneventful except that about a week after the onset of the illness a sudden pain in the calf of one leg suggested an embolus; this, however, subsided and there were no further embolic symptoms; by the end of seven months the heart was normal in size; that is, just at the nipple line or within it, the heart sounds perfectly clear and the rate regular. The child was kept in a horizontal position as quiet as possible for five months. During that time there were systolic murmurs heard at the pulmonic and mitral areas, the pulmonic murmur persisting much longer than the mitral. For many weeks a little excitement or exertion caused a reappearance of the mitral bruit. At the end of the fifth month, the heart being normal in size and the mitral sound being clear, she was allowed to sit up in bed five minutes; the following day there was some dilatation and increase of the murmurs. These disappeared in the course of a day or two. At the end of the month she was sitting up in bed two hours a day with rubs and passive exercises. Between the latter part of the fourth and sixth months, the murmur to the left of the sternum in the second interspace, heard when the patient was in a horizontal position, disappeared if she were held in a sitting posture.

General massage was instituted when the heart had been found normal in size for about two weeks and the mitral sound showed a tendency to be pure. With each progressive step, whether massage or passive movement or sitting up in bed, the heart displayed marked irregularity so that these changes were made in very slow stages before the patient was allowed to sit unassisted even for a few minutes. She was held in an upright position as a test of the myocardial function and was not allowed to support herself until this maneuver was not followed by irregularity or too rapid pulse. At the end of the seventh month she was allowed every liberty except standing. The heart was normal in size and all the sounds pure. She was then allowed to go to the seashore for three weeks but not allowed to walk.

With the beginning of the eighth month a few were permitted, which resulted after three or four days in a rather severe dilatation of the left ventricle. This was associated with systolic and pulmonic murmurs and an occasional slight irregularity in the shape of a lengthened diastole. The heart recovered after a few days in the horizontal position. There was no further cardiac trouble and the patient's heart remains at present, after an interval of two years, without any perceptible hypertrophy, with perfectly normal valve sounds, and the child is without the necessity of restriction in her activities which are those of a normal active girl. The diagnosis in this case rested on fever, rapid heart action followed by rather acute dilatation and irregularity, together with murmurs that changed from time to time and very marked muscular irritability.

Case 2.—Acute endocarditis with aortic and mitral valvulitis in a boy, aged 14. On July 26, 1910, the patient complained of two large boils on his abdomen which had been untreated for some days and were exuding a large amount of rather thin pus. He did not complain of his heart, but on examination the left margin was found to be slightly outside the left nipple line. There was a systolic thrill felt at the fourth interspace over the heart, sharp accentuation of the pulmonic sound, soft aortic murmurs to the right of the sternum heard also in the left second interspace and a distinct systolic mitral valvular murmur. Subsequently these adventitious sounds varied in intensity. The pulse dropped two or three beats a minute, rate at first 86 to 90 a minute, leukocytes 7,400, temperature 98.4 to 99 F. During the course of the illness there was no evidence of emboli either in the skin, joints or kidneys.

During the second week there was a very questionable pericardial rub. The spleen was unchanged upward being, at the upper border of the ninth rib, not palpable. This patient was kept in bed until the murmurs disappeared and irregularity of the heart ceased. It was not until twelve months later, and two or three weeks after he was permitted to be on his feet, that he was allowed to walk down stairs. During that time his illness was very similar to that of the patient in Case 1; he had been allowed to sit up in bed as soon as the heart was normal in size and murmurs were absent. Passive exercise and massage were employed and exercise was allowed as soon as possible. With the advent of each new procedure whether massage, passive movements or sitting position, the heart became enlarged and missed beats and murmurs reappeared. He was not allowed to stand for long until none of these things happened, with the result that not only have the heart sounds remained normal but in particular there is no ventricular hypertrophy. At present, four years later, the patient is in perfect health. His life so far as violent exercise was concerned was restricted for a year, but aside from that has been allowed every liberty including the usual collegiate activities, and during his vacations has become an expert cowboy on a cattle ranch.

Case 3.—Acute endocarditis with mitral valvulitis in a girl aged 7½. The mother had died of infectious endocarditis. Child's previous health had been normal. The onset of illness consisted of loss of appetite and slight malaise. Physical examination showed the left heart dilated, pulse regular, rate 110, no fever, but a distinct systolic murmur at the pulmonic and mitral areas. The murmurs varied during the next few months, the mitral murmur gradually diminished until it finally disappeared; pulmonic murmurs persisted about ten months. The heart was normal in size in three or four weeks. The patient's recovery was complete in ten months of which eight were spent in bed. Two months later she was allowed to return to school, the heart being normal in size, pulse regular, valve sounds perfectly pure. In this case there was no leukocytosis, no evident emboli. Normal health has been maintained for three years, during which time there have been no restrictions on her activities. There is no evidence of hypertrophy of the heart.

In these three cases there was at no time leukocytosis; a blood culture was made several times in the instance of the boy, with negative results, and in none was there more than a very slight fever; the pulse was variable. With the onset of the inflammation it is interesting to observe that there was tachycardia in one case for a day before dilatation occurred. Dilatation of the ventricle occurred suddenly and was associated with a slow intermittent pulse.

In the matter of treatment, the ultimate result to be expected in any case would depend largely on the degree and virulence of the inflammatory processes. It is advisable to reduce the work of the heart to a minimum by means of absolute rest, regulation of diet with a view to preventing distention of the stomach and colon and eliminating as much as possible a rise of blood pressure by the avoidance of hearty meals, use of the ice-bag, etc. The matter of rest is the most important of all. In fortunate cases this will result in a short time in diminution of the cardiac dilatation and will bring about conditions that most favor the subsidence of the inflammation. It is to be borne in mind that rest must be carried out with the utmost rigidity and the patient left as much as possible to the care of a suitable nurse. It is seldom desirable to separate a child from its parents, but the fewer people that enter the room the better. During the stage when inflammation is still present passive movements and massage have no place in the treatment. These measures, however, are of benefit when it is felt that the inflammatory process has disappeared and the myocardial irritability has sufficiently subsided.

The great aim in the treatment of such mild cases as here detailed is to prevent the increase of cardiac inflammation to such a point that there is the full painted picture of infectious endocarditis with its hopeless prognosis, and also to obtain a recovery before inflammation of a valve has gone to the point of such destruction as will result in scars of the valve segments and sooner or later a cardiac cripple. To that end it must be insisted on that the patient remain in bed a sufficient length of time, and a safe minimum is three months. Broadbent points out that a child with endocarditis dies, as a rule, before it attains adult life, especially if it does not receive that care which insures a complete subsidence of the inflammation, which may smolder for months, and a return of the heart to its normal size, also until the myocardium has lost its abnormal irritability and has regained such a sufficient margin of reserve strength as will prevent dilatation on slight provocation and will enable it to bear the burdens that a careless person may impose on it. Experience seems to teach that in adults acute endocarditis complicating inflammatory rheumatism is in many instances a very benign disease, recovery taking place in a much shorter time than is the rule with children. Valves already injured by previous inflammations present greater obstacles to a cure than inflammations occurring for the first time.

The use of vaccines is not unattended with danger.[14] In the first place the patient is already generating toxins theoretically sufficient without the addition of artificial vaccines. Again, when large numbers of bacteria are found in the blood, the use of vaccines may be attended with a reduction of the number of bacteria by destruction, but there are liberated at the same time toxins which result in an increase of the leukocytes and fever and a lowering of the condition of the patient. The same thing results in the use of foreign serums. It appears that the invading organism immunizes itself against the antibodies in the blood of the patient so that when foreign serum is introduced, although the number of bacteria may be diminished, the net result for the patient is bad. The use of cardiac stimulants is unnecessary so long as the proper amount of cardiac work is being performed, and it would seem rather advisable as long as possible to avoid stimulating the myocardium, already more or less degenerated from bacterial poisons, as the great desideratum is cardiac rest, not work. It is not to be denied that the use of small doses of digitalis may become necessary, but it will be observed that the heart muscle in endocarditis is very susceptible to the action of stimulants and even small doses of digitalis, for instance, may produce an irregularity before not present and which disappears on the cessation of the drug. Not only that, but in the presence of vegetations stimulation may cause a dislodgment and troublesome embolus.

209 Post Street.

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[14] Billings, Frank: Chronic Infectious Endocarditis, Arch. Int. Med., November, 1909, p. 409. See also Note 13.

INTESTINAL OBSTRUCTION DUE TO SIGMOID VOLVULUS

WITH REPORT OF A CASE OCCURRING IN A CHILD

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In December, 1912, I reported a study of 191 cases of intestinal obstruction, exclusive of external hernia.[1] This series included 8 cases of sigmoid volvulus, all occurring in adult patients. Since that time I have added to the original group the records of 66 cases of intestinal obstruction, making the present number 257. Among the new cases is one of sigmoid volvulus occurring in a child of 6 years, which is herewith reported.

Acute obstruction is much more common in the small than in the large intestine, 201 to 56 being the proportion in this series. Volvulus of the sigmoid occurred 10 times in the series, making about 18 per cent. of the large intestine cases, and 3.8 per cent. of all forms of obstruction. Volvulus of the small intestine occurred 11 times, twice in children. Of the 257 cases, 41 occurred in children under 12. Eighteen of these cases were ileocecal intussusception, and 6 intussusception of the small intestine proper. Intussusception therefore makes up more than half of all the cases occurring in children, and is 8 times as common as all forms of volvulus in this class of patients.

Volvulus of the sigmoid occurring in a child is an unusual form of obstruction. As is usual when the obstructing agent interferes with the circulation in the mesentery the symptoms are severe and toxemia develops very rapidly after the onset of the obstruction. Therefore the passage from the first to the third or terminal stage of the disease may require but a few hours of illness.

A true volvulus of the sigmoid is probably impossible unless this portion of the colon is redundant. In all the cases studied this enlarged sigmoid is noted. The normal contour and close position of the foot-points of the sigmoid make a mechanical arrangement especially favorable for the development of a twist when this loop of bowel is elongated. The feces collect in the loop, becoming more and more hardened as the constipation increases. Strong purgatives are usually administered to relieve this condition, and the resulting vigorous peristaltic movements forcing the contents of the distended loop of bowel against the fixed lower foot-point jam this outlet. Persistence of the force from above first makes the loop spastic and distended, and then sends the upper free portion in a spiral direction around the descending fixed portion.

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[1] McGlannan, Alexius: Intestinal Obstruction, The Journal A. M. A., March 8, 1913, p. 733.

Constipation is not necessarily a forerunner of volvulus. Any violent peristaltic action may cause the spastic contraction and the twisting movement of the long sigmoid loop.

The symptom of onset in sigmoid volvulus is abdominal pain, usually severe paroxysmal cramps, with or without previous constipation. Tenesmus with an inability to pass anything by rectum, except perhaps a little mucus, is often a secondary symptom. Blood may be present in the material expelled but the quantity is small and this sign is not at all frequently observed — a point of difference between the symptoms of volvulus and those of intussusception. An enema may be effectual, but if this does not relieve the pain or the nausea and vomiting which come on in a few hours after the onset, operation is indicated. The enema should be given through a long tube and with the patient in the knee-chest position.

The leukocytes are rapidly increased in number, reaching 25,000 or more in a few hours. In the 8 cases in adults studied the average was 23,000, the extremes 13,000 and 40,000. In the case occurring in a child the leukocyte count was 41,500.

Later on there will be distention with visible peristalsis, a palpable spastic coil in the lower abdomen, and then toxemia.

Operation should be performed in the early period of the obstruction, when it is safe to remove the redundant sigmoid and in this way prevent recurrent attacks. Simple relief of the volvulus is very likely to be followed by a recurrent obstruction. In one case of this series the patient had 32 attacks of obstruction and 3 laparotomies before his giant sigmoid was removed and a permanent cure effected.

The history of the case occurring in a child is the following:

The patient, a white girl, aged 6, was admitted to the children's ward of Mercy Hospital and examined in consultation with Dr. Edgar Friedenwald, who had at once recognized the acute surgical abdomen. The history was of two days' illness, the onset with cramps and diarrhea, followed by vomiting and tenesmus. No blood was in the movements. The patient was an anemic child, toxic, extremely listless, pulse rapid and thin; respirations thoracic and shallow. The abdomen was generally distended and tender. Muscle spasm and rigidity most marked in right lower quadrant. Dulness in both flanks. White blood count, 41,500, polynuclears 91 per cent.

Operation was performed immediately under novocain infiltration and ether anesthesia. A long right rectus incision was made. When the peritoneum was opened a large quantity of straw-colored fluid poured out. The small and large intestines were distended, but not inflamed. A hasty exploration of the right iliac fossa showed a healthy appendix and a greatly distended cecum. A much dilated loop of large bowel extended from the left over into the right lower abdomen. This loop was followed into the left fossa and proved to be the fundus of a sigmoid volvulus, which had twisted on its foot-points through an arc of about 300 degrees. This was untwisted, and a rectal tube passed through the anus by an assistant was guided by a hand in the abdomen up into the dilated loop. There was an immediate expulsion of gas and watery feces through the tube, with relief of the distention of the bowel. The abdomen was closed in layers, using fine silk sutures. The stomach was washed out and an ounce of castor oil given through the tube. Five hundred c.c. of salt solution and one dose of 1/200 grain atropin were given subcutaneously.

The patient was quite toxic for the first twenty-four hours after the operation and lavage of the stomach was required. After this time she improved steadily and in ten days was out of bed, the wound having healed.

Six weeks after the relief of the obstruction the second operation of resection and anastomosis was performed for the removal of the redundant sigmoid. The divided ends of the bowel were turned in and the anastomosis made by the method described by Bloodgood.[2] The turned in ends were sutured outside the parietal peritoneum and drains carried down to them. The muscles, fascia and skin were closed up to the drains.

Leakage from one end of the bowel occurred on the fifth day and prevented primary healing. The sinus closed spontaneously on the twenty-second day and the wound healed tight a week later.

As the child's home surroundings were very poor, she was kept in the hospital a month after the wound had closed. During this time she spent the days on the roof garden and was given increased nourishment. Her bowels moved daily without cathartics, her digestion was unimpaired and on her discharge she was in perfect health.

114 West Franklin Street.

GASTRIC AND DUODENAL ULCER

THE INFLUENCE OF OPERATIVE PROCEDURES ON GASTRIC MOTILITY AND SECRETION *

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AND
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It is generally conceded, both clinically and experimentally, that among the various factors responsible for chronic ulcer of the stomach, motor insufficiency and hypersecretion play the leading, if not the title, rôle. It follows that, in the treatment of ulcer, therapeutic procedures should be devised to control, so far as possible, these two important factors; in fact, the value of a given therapeutic measure can in a certain sense be gaged by its ability to restore the normal emptying time of the stomach (or to increase it) and to diminish the hyperacidity of the gastric contents.

Among various therapeutic measures instituted for the cure of gastric and duodenal ulcer, surgical procedures have been inaugurated in constantly increasing frequency. These surgical procedures are legion; they possess inexhaustible variations and modifications; they are constantly being supplanted by new models and new styles. Scant inquiry is devoted to the ultimate results of these operations, little thought to the permanent relief of symptoms, to the healing of the ulcer and the prevention of recurrences, and no consideration to gastric function, particularly gastric motility and secretion.

The present paper is a preliminary study of the postoperative results in a series of gastric and duodenal ulcers, with particular reference to the effect of operations on gastric motility and secretion, and the value of the procedure as gaged by these standards.

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[2] Bloodgood: Ann. Surg., 1909, xlix, 161.

* From the medical and surgical services of the Michael Reese Hospital. Read at the first meeting of the Chicago Society of Internal Medicine, Feb. 22, 1915.

A few similar studies have been made. Wilcox,[1] in 1909, reported one of the earliest postoperative studies, finding in general that stomach acidity, particularly "active" hydrochloric acid, diminished regularly after gastro-enterostomy.

Schüller,[2] in 1911, in a comprehensive study of forty clinical cases from Leube's clinic, as well as experimentation on animals, concluded that gastro-enterostomy alone, and gastro-enterostomy plus pyloric resection, modified motility more than secretion. In cases of pyloric obstruction with motor insufficiency, gastro-enterostomy alone raises the emptying time to normal, *but does not increase it beyond.* (In one case the emptying time was delayed.) In cases without obstruction and good motility, gastro-enterostomy produced no change, the emptying time remaining normal (no increase). These results are different from those of Jonas, Steindel and others, who describe the emptying time increased above the normal in all cases of gastro-enterostomy. They likewise differ from the results of Hartmann and Soupault, Rosenheim, Dunin and others, who find the emptying time delayed or made worse.

In fifteen cases of the combined operation (gastro-enterostomy plus pyloric resection), Schüller found the motility of the "pylorus frei" stomach inconstant in different patients, and in the same patient at different times. With complete removal of the muscle-bearing portion of the stomach (antrum pylori), insufficiency is liable to occur, because of increased difficulty of overcoming strong jejunal peristalsis.

In reference to secretion, Schüller found rather universally the values of free and total acidity lower than before operation, similar to the conclusions of Krause, Renki, Kausch, Hartmann and Soupault, and others. A few cases showed no change in acid values. One patient with normal acidity before operation showed a constant postoperative hyperacidity. He noted no striking difference in acid values in gastro-enterostomy, with or without pyloric resection.

Dogaero,[3] in 1913, came to somewhat similar conclusions. He estimated the emptying time of the dog's stomach by use of gastric and duodenal fistulas after introducing a 5 per cent. solution of glucose. In dogs with complete pylorectomy and gastro-enterostomy, the stomach discharged its contents much more slowly than normal. A mixed dietary made this motor delay even more apparent. He concluded that the pyloric portion normally acts as an accelerator, and that in its absence (pylorectomy) the pendulum contractions of the jejunum act as a resistance to the relatively weak fundus musculature.

Faulhaber and Redwitz,[4] in 1914, analyzed twenty-six cases of penetrating callous ulcer of the fundus, in which a resection of the ulcer-bearing median portion of the stomach with direct union of the cardial and pyloric stumps had been made by Enderlen—the "sleeve" operation of American surgeons. In from sixteen days to two years following operation, the patients were submitted to a complete physical examination, test meals, fluroscopic and Roentgen-ray examinations, etc. All had gained in weight, had taken up their old occupation and could stand all foods in moderate quantities. Test meals showed free acid and total acidity markedly lowered; some even were subacid or anacid. Fluoroscopy showed early emptying time increased in all cases, although complete emptying time was variable—the early rapidity being only temporary. They found no constant relation between emptying time and secretion; for example, cases with most rapid emptying time had relatively high acidity. They concluded that the motor activity of the pyloric antrum and the sphincter was not disturbed by resection of the middle portion of the stomach, and that the time of emptying depends on the balance between the relatively inactive fundus and the active antrum.

The cases forming the basis for this study comprise seventeen—nine gastric and eight duodenal ulcers. With the exception of three private cases of one of us (Hamburger), these patients were obtained from the regular medical and surgical services of the Michael Reese Hospital. The patients either presented themselves voluntarily because of nonrelief from their operation, or came in response to follow-up letters. Of the seventeen patients, eight received no or only partial relief from their complaints; nine cases resulted in marked benefit or complete cure. The patients were examined for the most part on an average of from three months to two years following operation; one patient as early as five weeks, one as late as twelve years. So far as possible, all patients were submitted to complete physical examination, test breakfast and motor meal, fluoroscopy and Roentgen-ray examination before and after operation. The roentgenographic examinations were made under the supervision of Dr. Frances Turley. In some instances this complete examination was impossible; in a few cases we were forced to be content with only partial data, and in two cases letter replies constituted the only available information.

The gastric ulcers divide themselves into two groups: lesser curvature ulcers (four) and pyloric ulcers (five).

The following may be taken as a type of the former:

Case 1.—S. W., merchant, aged 49 years, had a gnawing pain in the epigastrium one hour after eating for thirteen years and vomiting for two weeks. He had lost 15 pounds in weight. He was a heavy smoker and ate hurriedly. He had had chronic rheumatism twenty years previously. Physical examination was negative. Ewald's test meal revealed:

Amount	Free	Total
60	20	40
90	25	43
90	20	45

Motor meal was negative (seven hours). Fluoroscopy revealed the stomach completely empty in four hours. Roentgenoscopy revealed a penetrating ulcer of the lesser curvature.

The ulcer was excised near the cardia. No gastro-enterostomy was performed. Five weeks after the operation, examination revealed:

	Amount	Free	Total
Ewald's	190	0	10
Motor meal	40	30	90

Fluoroscopy revealed the emptying time at six hours, and roentgenoscopy a partial hour-glass constriction.

Nine months after the operation the patient wrote: "Now I eat practically everything, including meat; eat more than used to before operation; have no pain; have a better appetite; no vomiting; have gained in weight."

Epicrisis: Excision without gastro-enterostomy. Clinical result excellent. Motility: Slight motor insufficiency (hour-glass) (tube and fluoroscopy) immediately after operation, probably only temporary. Secretion: Slight increase in amount—decrease in degree of acidity. Postoperative hypersecretion?

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[1] Wilcox: Quart. Jour. Med., 1909, iii, 93.
[2] Schüller: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1911, xxii, 715.
[3] Dogaero: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1913, xxvi, 176.
[4] Faulhaber and Redwitz: Med. Klin., 1914, Nos. 16 and 17.

Of the three remaining ulcers of the lesser curvature, one had gastro-enterostomy with excision; two, gastro-enterostomy alone. All patients obtained a fairly satisfactory clinical result, those with excision the best. In all, secretion values were reduced. Motility was more complicated: 1, normal before—slight delay afterward (excision alone); 1, slight delay before—normal after operation (excision plus gastro-enterostomy); 2, normal before—normal after operation (gastro-enterostomy alone).

Results agree fairly well with Schüller, and parallel the conclusion of Bolton[5]:

> "If stomach empties in normal time, gastro-enterostomy must be a useless procedure; operation would prove useless in treatment of an ulcer situated away from pylorus, either on lesser curvature or elsewhere."

The five pyloric ulcers are more difficult to handle. The following is an extremely brief summary of their —in some instances—extremely complicated histories:

CASE 2.—E. S., salesman, aged 48, had had a burning and gnawing pain one-half hour after eating for five years, and delayed vomiting. He had lost 40 pounds in weight. He had had typhoid twenty-seven years before.

Examination revealed an ulcer at the lesser curvature near the pylorus with marked pyloric obstruction; marked stasis with hyperacidity.

The operation consisted in resection of the ulcer-bearing portion, pylorectomy and gastro-enterostomy.

The result after ten months was excellent. The stasis was relieved. The emptying time was three hours. Tube and fluoroscopy were in accord. The acidity was reduced.

The positively good result in this case is in marked contrast to the following:

CASE 3.—A. C., blacksmith, aged 38, had had a burning pain two and one-half hours after eating for two years. There had been vomiting for two weeks. He had lost 12 pounds in weight. He had had typhoid fifteen years before.

Examination revealed an ulcer of the pylorus, with adhesions; marked stasis, with hyperacidity.

A posterior gastro-enterostomy was performed, the pylorus not excluded.

The result after six weeks was improvement. The stasis was improved (the stomach being empty in seven hours). Hypersecretion remained, and the acidity was the same.

In this case the motility result was better than the secretion, although the patient was not observed sufficiently long to be sure of the permanence of the result. Pylorectomy or pyloric exclusion should probably have been performed, in addition to gastro-enterostomy. There was probable postoperative hypersecretion.

CASE 4.—B. K., cigarmaker, aged 42 years, had had epigastric pain two hours after eating for eight years, with constant vomiting; loss in weight.

Examination revealed marked stasis, marked hypersecretion and hyperacidity. There was an old pyloric ulcer, with pyloric obstruction.

A posterior gastro-enterostomy was performed; the pylorus was not excluded.

The result was poor. The pain, vomiting and stasis were unrelieved. Gastric tetany, one month. Roentgenoscopy revealed a vicious circle. Stasis and hypersecretion were made worse.

A second operation for adhesions, with lateral anastomosis entero-enterostomy, resulted in improvement for three years. The result after three years was poor. There was complete obstruction, neither the pylorus nor the stoma functionating.

Epicrisis: No relief from gastro-enterostomy. Ulcer should have been resected and pylorus closed.

CASE 5.—A. W., aged 48, had had pain after eating for three and one-half years. There were no obstruction, hyperacidity or positive surgical indications.

Examination was negative.

Operation revealed adhesions and a scar at the pylorus. A gastrojejunostomy was performed, with no relief from symptoms. There was conversion of normal motility and secretion to stasis and hypersecretion.

Fluoroscopy revealed normal motility; motor meal, stasis.

A second operation for adhesions, with pyloric exclusion, resulted in the patient's feeling well for five months.

Epicrisis: Surgical interference not indicated. Patient had not had benefit of medical treatment. Conversion of normal stomach function into abnormal. No permanent relief from first or second operation.

From this series the following conclusions may be drawn: Gastro-enterostomy performed without definite surgical indications (stasis—hypersecretion) is liable to convert normal gastric function into abnormal. Gastro-enterostomy with definite surgical indications is liable to fail and increase stasis and hypersecretion if the pylorus be not excluded. The best results, with relief of stasis and hyperacidity, are obtained by pylorectomy (or pyloric exclusion) plus gastro-enterostomy. In the case of pyloric ulcer, excision and closure are of even greater importance than in ulcer of the lesser curvature. Conversion of normal to abnormal function is due to pylorospasm (Hertz[6]) or postoperative hypersecretion, or both. In the latter event, some cases evidence good motility, but show marked hypersecretion following the test breakfast and motor meals.

Postoperative hypersecretion (without stasis), as observed in this series, as well as in several duodenal ulcers, to be discussed later, has several interesting problems. From a clinical standpoint, it is likely that in cases showing acid contents after motor meals, the explanation lies not, as has been thought, in postoperative stasis, but in postoperative hypersecretion. Furthermore, postoperative hypersecretion may explain certain discrepancies found to exist between the results of bismuth-buttermilk meals, as observed by the fluoroscope, and motor meals, as determined by the stomach tube. In fact, in two cases the bismuth meal left the stomach within six hours, while the stomach tube at the end of seven hours yielded but 2 to 3 ounces of acid contents, with little or no food residue.

The physiologic mechanism of postoperative hypersecretion is described somewhat by Lobassow and Orbeli.[7] In certain operations on the dog's stomach, for example, the Heidenhain-Pawlow small stomach operation, they describe a hypersecretory postoperative period. This period of hypersecretion is usually transitory and is held to be due to increased irritability of the nervous control of the secreting glands, a result of operative trauma. Orbeli found a similar hypersecretory condition after making a simple stomach fistula. It is our belief that a similar postoperative hypersecretory period follows surgical procedures on the human stomach, and may account for certain postoperative findings. The thought occurs that postoperative hypersecretion may follow operations on other portions of the gastro-intestinal tract, such as appendix or gallbladder, or from narcosis alone. We hope to test this question out in the near future.

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[5] Bolton: Ulcer of the Stomach, London, 1913.

[6] Hertz: The Sensibility of the Alimentary Canal, London, 1911.

[7] Orbeli: Arch. d. Scienc. Biol., 1906, xii, 1.

ULCER OF THE DUODENUM

Without giving separate protocols of the eight duodenal ulcer cases, we shall confine our discussion to several points which their study has brought forth.

1. Two cases of gastro-enterostomy without pyloric exclusion showed rapid (two-hour) discharge of bismuth up to and by way of the gastro-enterostomy opening, with delay (six hours) of food beyond the opening—the bismuth finally passing out through the pylorus. This was true of the motor meal plus bismuth, as well as the regular bismuth-buttermilk meal. In one case, the delay of the contents beyond the opening amounted to a true stasis. Another case showed rapid early discharge up to the level of the opening, but delay of the residue in the small sac below the level of the gastro-enterostomy opening. Placing the patient in a recumbent position allowed this residue to discharge.
2. As in the case of gastric ulcer, pyloric exclusion plus gastro-enterostomy was attended by the best results. In two cases with the pylorus left patent, marked stasis occurred in the overfilled and distended duodenum at the site of the ulcer! In this case, in spite of the wide, well-placed enterostomy opening, the maximum discharge occurred through the patent pylorus.
3. Cases with normal preoperative findings developed postoperative stasis and hypersecretion, similar to gastric ulcer.
4. Two duodenal ulcer cases showed late — four and twelve years, respectively — gradual closing of the gastro-enterostomy opening, necessitating a second anterior operation. Zweig[8] and Mallory[9] describe cases of spasm of the opening, similar to pylorospasm.

SUMMARY

1. Operative procedures on stomachs with normal motility and secretion frequently produce stasis, hypersecretion or both.
2. Stasis may be caused by pylorospasm, by contents stranded below the level of the gastro-enterostomy opening, or by contents held between the opening and the pylorus.
3. Hypersecretion may occur coincidentally or secondarily to stasis, but also independently, as a true postoperative hypersecretion, similar to the same conditions in dogs. This hypersecretory period is probably due to operative trauma, and is likely to be temporary. Postoperative hypersecretion explains certain discrepancies between bismuth and motor meal findings.
4. Operative procedures on stomachs with delayed motility and hypersecretion usually reduce motility to normal (but not beyond), and lower hyperacidity. This is particularly true if the pylorus is closed. If the pylorus is left patent, vicious circle, stasis in duodenum, spasm or secondary contracture of the opening are liable to continue the abnormal gastric function or to increase it.
5. Nonrelief from surgical interference in gastric and duodenal ulcer is due to (*a*) lack of properly placed surgical indications; (*b*) lack of thorough and prolonged preoperative medical treatment; (*c*) failure to devise the proper surgical procedure to meet the individual case, and (*d*) lack of prolonged *post*operative medical treatment.

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[8] Zweig: Arch. f. [illegible] 740.

[9] Mallory, Williar [illegible] ınd Gastro-Enterostomy, The Journal A. M. A

SOME SURGICAL EXPERIENCES AMONG INDIANS OF ALASKA

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Every physician at some time during his career is called on to administer aid and even to perform a serious operation under most trying circumstances, and without proper equipment and assistants; in this respect the following experience may be of some interest.

It has been estimated that at least 20 per cent. of the Indian children in Southeastern Alaska are afflicted with adenoids and diseased tonsils which require surgical interference. This condition is largely due to the rainy weather which prevails in this section of Alaska. During a recent tour of inspection of the Government Indian Schools in Southeastern Alaska, I performed fifty-seven surgical operations in thirteen days at Klawock and Hydaburg, two Indian settlements 40 miles apart on Prince of Wales Island.

LIST OF OPERATIONS

Hydaburg:		
January 14	1	pterygium
January 15	3	adenoids and tonsils
January 16	5	adenoids and tonsils
January 17	4	adenoids and tonsils
January 17	1	lipoma, weight 1½ pounds
January 18	7	adenoids and tonsils
Klawock:		
January 22	1	adenoids and tonsils
January 22	1	harelip
January 23	7	adenoids and tonsils
January 25	3	adenoids and tonsils
January 25	1	ectropion
January 26	4	adenoids and tonsils
January 27	4	adenoids and tonsils
Hydaburg:		
January 29	5	adenoids and tonsils
January 30	5	adenoids and tonsils
January 31	5	adenoids and tonsils
	53	
	4	other operations
	57	operations in 13 days

The table shows the maximum number of cases operated in a single day to be seven; five in the morning from 9 to 12, and two in the afternoon. The patients operated on for adenoids and tonsils were between the ages of 2 and 38 years; all operations were done under chloroform or ether anesthesia, and there were no fatalities or serious complications. But one case required resuscitative measures from the effects of chloroform, and a tonsil hemostat was applied in one case to check persistent hemorrhage.

The school house in each community was utilized for a hospital. One room served as an operating room and another as a receiving ward for postoperative cases, where they were kept for a few hours before being carried to their homes on stretchers. An improvised operating table was constructed from rough lumber and covered with blankets furnished by the patients. Sponges were prepared and sterilized by baking in an oven, while mercuric chlorid solution was used for the hands and towels and compound solution of cresol for instruments. As operating gowns were unavailable, a towel over the chest served as a substitute. The corps of assistants comprised a trained nurse to hold the tongue depressor, one teacher to light the oral cavity with a pocket electric flashlight and assist in sponging the field of operation, and a second teacher who administered the anesthetic under supervision.

The evening before the operation, and after a careful examination of the heart and lungs, each patient was given a dose of calomel, instructed to refrain from breakfast the following morning, and directed to bring two blankets and five towels for his individual use at the appointed hour. These instructions were very faithfully complied with and with two exceptions there was no vomiting during the operation.

I personally administered the anesthetic until the operative stage was reached, when the teacher continued it under close observation. The hands of the operator were immersed in bichlorid solution for a few moments, the head and chest of the patient covered with towels treated in the same solution, and the operation commenced.

The mouth gag being inserted in place and a tongue depressor holding the tongue off to one side, the tonsil was grasped by a forceps, dissected out, and enucleated with a snare. A forceps carrying a sponge was quickly introduced into the space formerly occupied by the tonsil and pressure applied to check hemorrhage while the anesthetic was resumed. The second tonsil was enucleated in the same manner, after which the adenoids were scraped with a curet and any remaining adenoid tissue completely removed with the index finger covered with gauze. The patient was then quickly turned over on the side to facilitate the expulsion of blood into a bucket on the floor. After all hemorrhage had ceased, the patient was cleansed and carried into the receiving ward on a cot, where the relatives applied cold towels about the neck and looked after him during vomiting spells. After each operation the instruments were washed off in water and thrown into the lysol solution, while the towels of the next patient were treated with bichlorid solution and the blankets arranged on the table.

This experience illustrates what can be accomplished under adverse conditions and without the facilities usually demanded by surgeons in hospitals.

Tincture of Iodin in First Aid Packet.—The Italian government has ordered thousands of small elastic rubber tubes to contain tincture of iodin. They are to be given the soldiers with their first-aid packet as an improvement over the tiny glass bottle of tincture of iodin and the brush given the French soldiers. The *Policlinico* adds that the British are said to be adopting the French method. In the Italian method the fluid is sprayed on the wound by pressure on the rubber tube.

EXTENSION OF THE LIMITS OF OPERABILITY OF RECURRENT CARCINOMA OF THE BREAST

CARL BECK, M.D.
CHICAGO

The operability of a carcinoma of the breast depends on many factors, chiefly, however, on the extent of the pathologic condition. It is true that many varieties of carcinoma exist as far as the malignancy and progress of the lesion are concerned. Some grow slowly, some rapidly, some form their metastatic deposits very gradually, others show from the start a quick dissemination. On the whole, however, the progress is similar in all, namely, first an invasion of the regionary axillary glands, then of the glands of the supraclavicular region of the same side, then of the chest and sometimes of distant portions of the body.

Experience shows that recurrence of the growth after a skilful radical excision is mostly seen in the axillary region and in the neck, whereupon the vessels, particularly the veins and the nerves of the arm, become blocked and compressed. The neuralgic pains of the arm and the edema of the same are for the most part the evidences of such a recurrence. When this stage is reached, most surgeons consider the case inoperable with the view of radical cure, and justly so, because it is very questionable that an elimination of the process now spread into a region of great vessels and proximity to the large nerve trunks is possible. The only thing to do in such cases is to comfort the patients with a Roentgen ray or Coley's serum and the most reliable morphin. Such cases are always a dread to the surgeon.

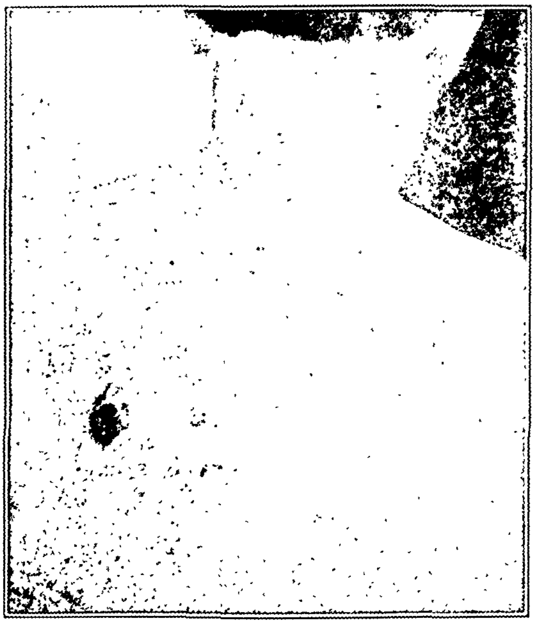


Fig. 1.—Primary carcinoma of back with metastases in axilla and neck (Case 5).

Many times it seems to me cruel to allow such a patient to linger toward a certain death and stand by while he is dying by inches. In the course of the last few years, however, I have been able to snatch a few cases from such certain death, and since years have elapsed from the time of treatment and no recurrence has taken place, I feel that there is a *possibility of doing* some good in some of such cases by a more extensive operation, It consists in the exarticulation of the whole shoulder-girdle, including clavicula, arm and scapula, with the plexus and the vessels of the affected side, with the ribs, if necessary, should they seem invaded by the carcinoma. It may be that such procedure has been done elsewhere; I have not taken the trouble to go through the literature to find instances of that kind; at any rate the procedure is not common and its publication may be useful to recommend it.

The technic of the operation is not simple in every case, and there cannot be prescribed a definite plan in detail. In the individual case there must be an individual plan in order to make the operation safe. It is a very extensive operation and requires great delicacy, because of the removal of such a large part of the body. The section of such large nerve trunks is a great shock to a person afflicted for a long time and often not in the best condition.

On the whole, however, it begins with the formation of a large skin flap destined to cover the whole area of the defect, the exarticulation of the clavicle following, then dissection of the tissues of the neck and axilla in one block, ligation of every vessel as it is reached, cautious cutting of one nerve after the other, and lastly, the separation and excision of the scapula. Altogether I have done this operation eight times in nine years. All cases were desperate, some of the patients operated on several times by myself or others, were all considered inoperable, some of them having consulted the best operators of the country, who declared surgical operations useless.

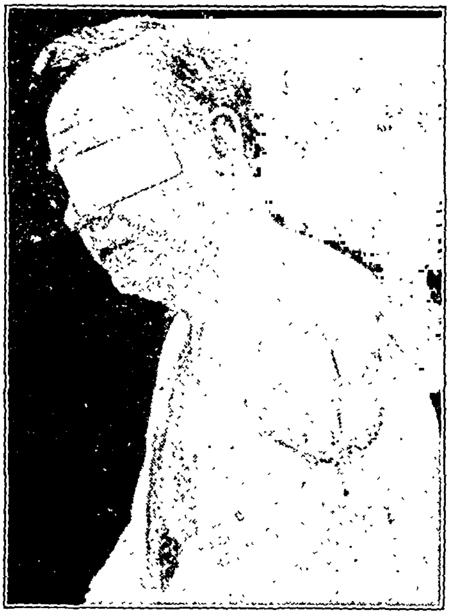


Fig. 2.—Patient (Case 5) five years after last operation.

REPORT OF CASES

Case 1.—Mrs. M., aged 34, had carcinoma of the breast. Radical operation in 1905. One year after operation recurrence in supraclavicular region, glands in axilla, swelling of arm, severe neuralgia; several secondary incomplete operations afforded no relief. There were strabismus, with rigid contraction of neck, a regular torticollis from contracture, and severe headaches, showing diffuse dissemination. I decided to remove the shoulder with adjoining glands and all tissues of the neck (1906). The patient was relieved and lived about six months but finally died from intracranial carcinomatosis.

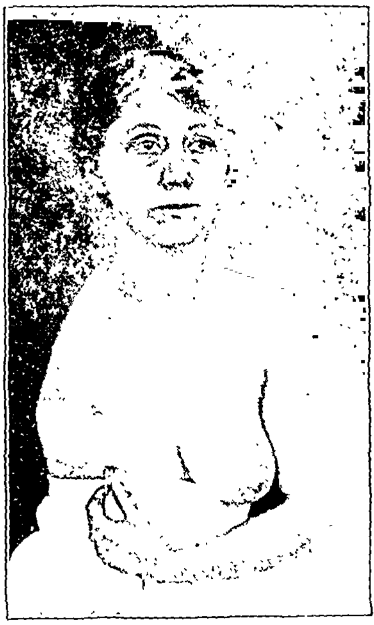


Fig. 3.—Patient in Case 6 shortly after removal of shoulder girdle.

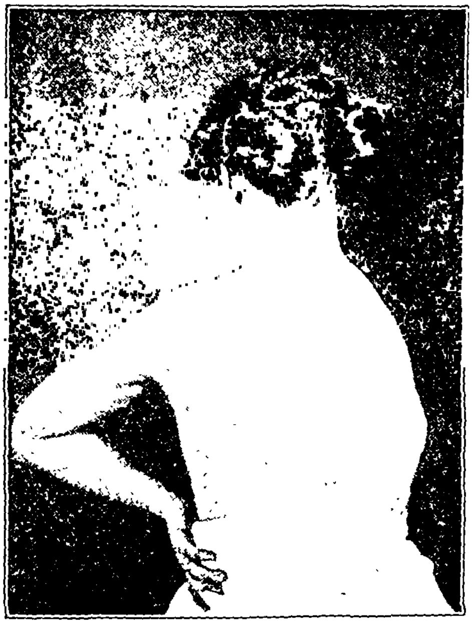


Fig. 4.—Patient in Case 6, posterior view.

Case 2.—Mrs. C., aged 60 years, an old Italian woman. History similar to that of Patient 1. Operation was performed in 1907 for carcinoma of the breast; several incomplete secondary operations by different surgeons. In 1908 the patient was suffering from intolerable pains in arm and chest, a tumor pressing on the plexus, and coughing spells; arm immovably adherent by carcinoma to the chest; a desperate case. In September, 1908, she was operated on by exarticulation of the shoulder-girdle. The upper four ribs, closely connected with the carcinoma, were resected with the tumor. The patient made a good recovery, and lived three years practically free from symptoms. I have not heard from her since 1911, and have not been able to locate her. Most probably she has died since that time.

Case 3.—Mrs. Z., aged 65, a German housewife, with carcinoma of the breast, was operated on several years ago in Germany; had in 1909 a recurrence deep under the axilla, with immovability of the arm, which was edematous and painful. The case was very favorable for radical operation with exarticulation, which was done. The patient made a good recovery, but developed erysipelas after the operation and had to be removed from the hospital. She died of erysipelas at her home.

Case 4.—Mrs. C., Italian, aged 58. A case similar to Case 1. Exarticulation performed in 1909 with good surgical result, but had a complication showing that the pleura had been invaded. The patient lingered for some time and then died.

Case 5.—Mr. J. F., recommended to me by Dr. H. on account of carcinoma of his back (Fig. 1). Radical operation was performed, with excision of the infected axillary glands. Free for some time; then there was a recurrence of the tumor on the neck above the clavicle and extending into the middle of the neck. Extirpation of the cervical glands in a secondary operation. Relatively well for several months, but returned with recurrence in the axillary pit, with a large group of indurated glands, swelling of arm and pain. Removal of these glands afforded no relief; patient developed lymphangitis of arm and severe septic infection, which ran him down considerably. After he had recovered from this operation the patient felt somewhat better than before, and attended to his business, though not free from recurrence, which showed on the neck again. The arm was only partly movable and swollen. At this time I proposed exarticulation as a last resort. The gentleman, who holds a prominent position, could not decide to have it done and consulted different surgeons. One of the most prominent wrote: "I cannot see how anything can be done except treatment with Coley's serum or morphin."

Seeing no alternative, the patient finally submitted. The operation was performed in the presence of a prominent surgeon of London, England, who happened to be visiting me at that time. The patient made an absolute recovery and has been free from recurrence since, now five years (Fig. 2).

Case 6.—Miss J., school teacher, aged 30, was brought to my office from the depot, just about to return home from the hospital. She had a severe hemorrhage from a tumor of the breast. All the patient's clothes were saturated with blood, which was running down on her body. She had been at one of the hospitals for several weeks, treated with the Roentgen ray for an inoperable carcinoma of the upper breast and was sent home with the decision that nothing more could be done. Before her entrance to the hospital she had been operated on at home twice within a year by her local physician, an incomplete removal of the breast tumor having been done; then she came to Chicago, but radical operation was thought impossible by one of our most competent surgeons. As she reached the depot the hemorrhage occurred. Hemorrhage had occurred twice before while at the hospital. By a compression bandage I stopped the hemorrhage and after two days we took a roentgenogram, ascertaining that the pleura and lung were free. I decided on exarticulation. Technic as usual. She made a quick and splendid recovery and has been well since; has had no recurrence and was shown at the Clinical Congress of Surgeons in 1913 (Figs. 3 and 4).

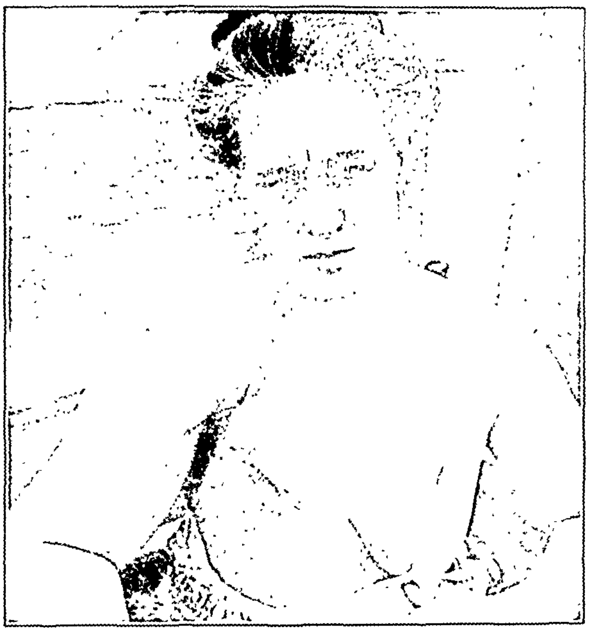


Fig 5.—Patient in Case 7, showing condition after several radical operations. Note neck and both arms.

Case 7.—Mrs. A., aged 54, came to me after having been operated and reoperated on twice for carcinoma of the breast. Had all the typical symptoms of secondary carcinoma of the type described above. Her appearance seemed to indicate that she would make an excellent case for our operation. The only difficulty was the very tight scar formation around the neck of the humerus, owing to the different dissections (Fig. 5). In this case I learned that we have to be careful in sectioning the nerve trunks, and particularly the deep nerves of the neck, vagus and phrenicus. I cut several large nerves and at once pallor and weak pulse appeared and deep shock followed, from which the patient rallied slightly only for a time. Just as I completed the dissection she died.

Case 8.—A few weeks ago I operated on Mrs. S., a poor woman, who suffered agonizing pain from a recurrent tumor of the breast and neck after a radical operation. She was in continuous pain and morphin would not stop it. I decided to cut the nerves of the plexus only, as it seemed impossible to remove the carcinoma even with such an extensive operation as exarticulation. On the fourth rib, near the sternum, was an isolated, ulcerated tumor which could not easily be removed (Fig. 6). Under novocain I dissected out and cut one nerve after the other of the plexus.

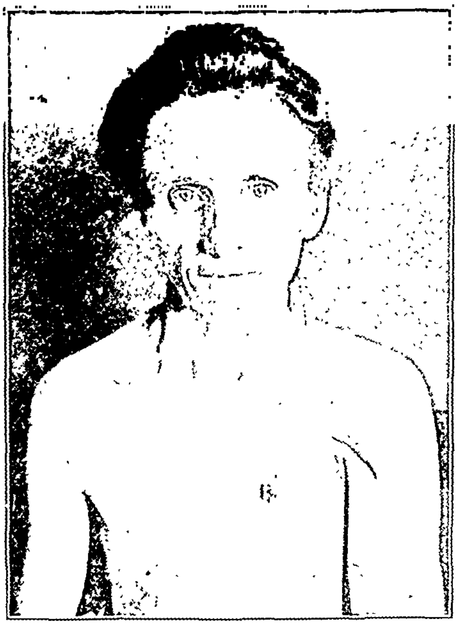


Fig. 6.—Patient in Case 8, showing difference in the arms, solitary carcinoma on chest and metastasis in left side of neck.

Following the operation, the actual pains in the arm stopped, but on the neck and around the shoulder there was still neuralgia. The arm was so heavy that the patient said it felt like a ton and therefore I removed it at a second operation, and since that time the patient is free from pain and has also improved in general health. The isolated recurrence of carcinoma on the ribs is yielding slowly to the blue rays. The Roentgen ray seemed to make it disappear more rapidly, but patient seemed to grow weaker, it was thought, on account of too rapid absorption of the destroyed carcinoma material.

Summing up these results, I may say that while they are not ideal, considering the desperate condition of the cases, they are very good and the procedure seems to me commendable. After all, when I look back on my results in twenty-six years of surgical practice, the only permanent relief I have ever seen from any remedy in carcinoma was from the knife, and all other agencies on which I have pinned a great deal of hope at first, have in most instances disappointed me. Most important of all seems to me the deduction that even some of these apparently hopeless cases have still a slight chance when we go to the limit.

108 North State Street.

The Mortality Bill Against Alcohol.—In a number of life insurance companies, chiefly in Great Britain, the abstainers were separated from the rest of the policy holders (all accepted as temperate and healthy risks), and the difference in the death rate determined. In one institution of London over a period of forty-five years the mortality of the nonabstainers, or so-called moderate drinkers, accepted as temperate and healthy risks, was 37 per cent. higher than that among the total abstainers. In another association of London over a period of twenty-seven years the mortality of the nonabstainers was 54 per cent. higher than among the total abstainers. In a third life assurance company of Glasgow, over a period of twenty-nine years, the mortality of the nonabstainers was 44 per cent. higher than the mortality among abstainers. In a Canada company over a period of eight years the mortality of the nonabstainers who had been accepted as temperate and healthy risks was 78 per cent. higher than among the abstainers.—Monthly Health Letter, Life Extension Institute.

FRACTURE OF THE PATELLA

AN ORIGINAL METHOD OF RETAINING THE FRAGMENTS IN APPOSITION

JOHN A. WYETH, M.D., LL.D.
Surgeon-in-Chief to the New York Polyclinic Medical School and Hospital
NEW YORK

For the last three years, the following simple and successful method has been employed in recent cases of ordinary transverse fracture of the knee-pan:

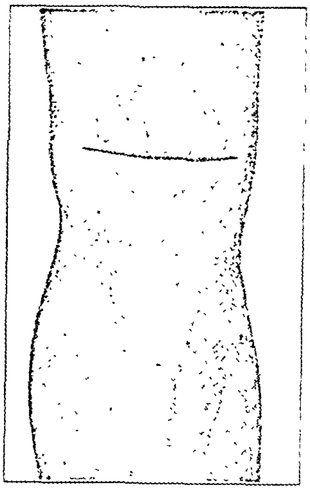


Fig. 1.—Line of incision across the middle line of the sulcus due to separation of the fragments.

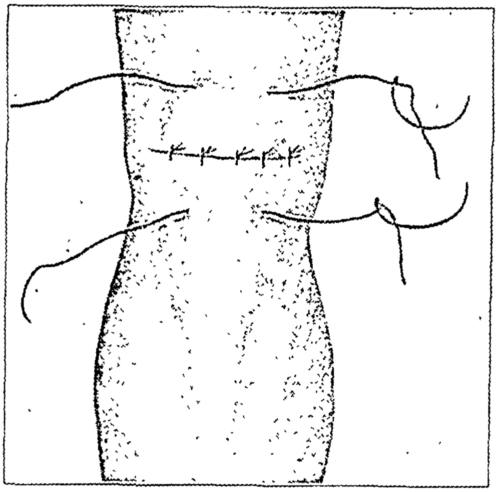


Fig. 2.—The retaining sutures of linen inserted and the incision closed, after removing the clot and reuniting the torn edges of periosteum.

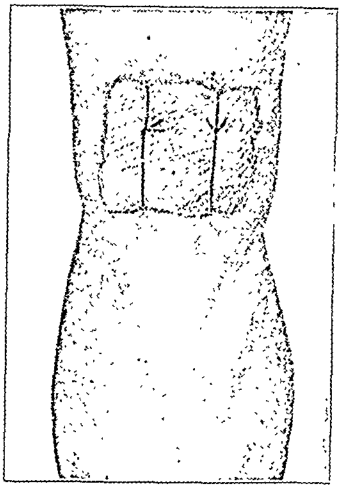


Fig. 3.—The dressing applied and the retaining stitches tied.

The edges of the fragments are exposed by a transverse incision over the center of separation, and the intervening clot washed out with reasonably hot salt solution, a syringe being used with as much force as is necessary to cleanse thoroughly. A gentle swabbing would suffice, but water gives a minimum of traumatism.

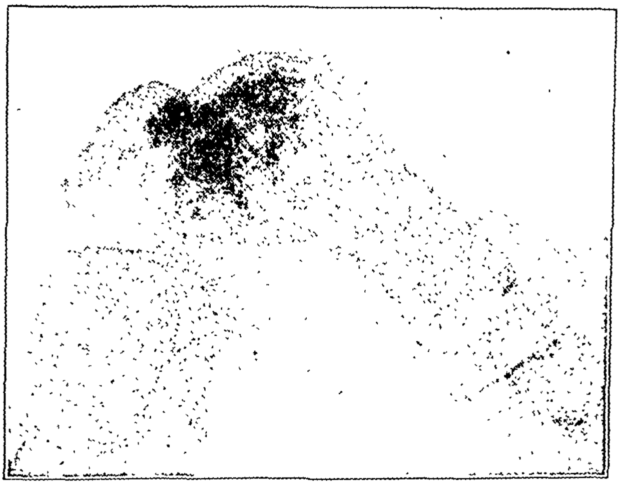


Fig. 4.—Roentgenogram one year after operation. Extreme flexion; function normal.

The opposing frazzled edges of overhanging connective tissue are now carefully stitched with a continuous, very fine linen suture, and the skin incision closed with running chromicized gut.

The holding device is as follows:

A strong quarter curved needle (Hagedorn by preference) threaded with extra large linen (No. 5) is carried across the lower border of the lower fragment, dipping greedily into the substance of the ligamentum patellae, just along its expanded attachment to the patella.

The points of entrance and exit of this needle should be about 1¼ inches apart, and the thread ends left 8 inches long.

The same maneuver is practiced along the upper edge of the upper fragment, the needle going well into the quadriceps extensor insertion, but not entering the bursa beneath this tendinous expansion.

Two strips of sterile gauze are now laid over the incision, and over these are tied very firmly, as one would tie one's shoestrings, the upper and lower ends of the opposing threads. In this way, not only are the fragments held in perfect contact, as no separation by muscular contraction is now possible, but also they cannot be tilted, or override.

A plaster-of-Paris cast is applied over all, from the ankle to near the groin, and the patient kept in bed for a week, with the foot elevated on a pillowed chair. After this, locomotion on crutches is permitted *ad libitum*. The dressing is not disturbed for six weeks, when the threads are removed, and then slight passive motion is made, while the fragments are very strongly supported. The cast is readjusted, and there is a repetition of this two weeks later, and again, two weeks further on. The knee should be guarded from overstrain for at least six months, as a common-sense precaution. The danger of ankylosis is nil.

I have always done this operation with ether anesthesia. If done with novocain, the holding threads should first be inserted, as an assurance against possible involuntary contraction of the quadriceps extensor.

Figure 4 shows the result one year after operation. The function is perfect.

244 Lexington Avenue.

Industrial Accidents.—A conservative estimate of the economic loss in this country through industrial accidents places it above a quarter of a billion dollars each year. This is more than two million workmen could earn in twelve months at $4 a day.—*From an address by J. Kirby, Jr.*

New Instruments and Suggestions

A NEW BONE CLAMP

R. E. Farr, M D., Minneapolis

This instrument is designed for the purpose of reducing and holding reduced the fragments of a fractured bone, when the open treatment is indicated, while one of the various forms of fixation methods is applied.

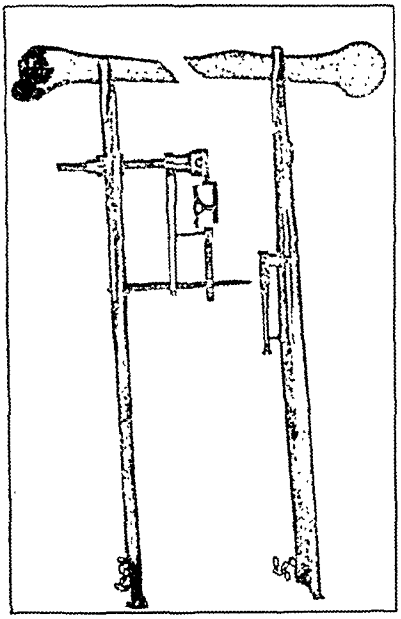


Fig. 1.—Farr bone clamps in position for reduction of fracture.

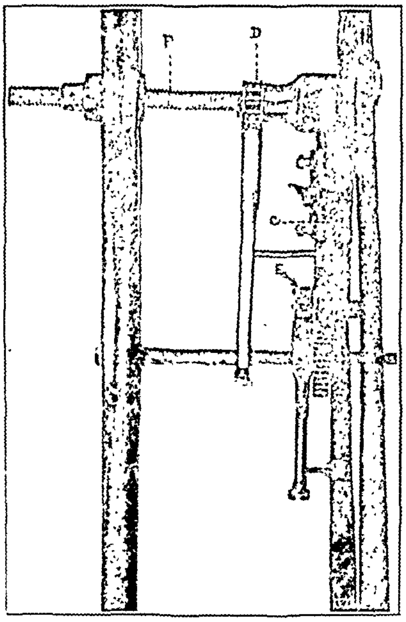


Fig. 2.—Mechanism of clamp. *C*, clasp for locking forceps together; *D*, ratchet by means of which shortening is overcome; *E*, ratchet for lateral movement of fragments; *F*, bar as fulcrum.

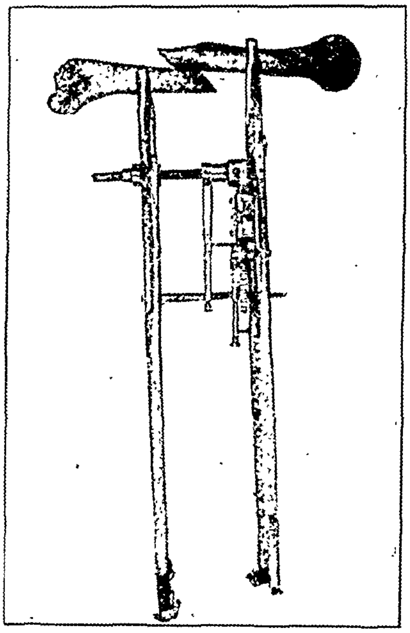


Fig. 3.—Clamp in position for reduction of overriding.

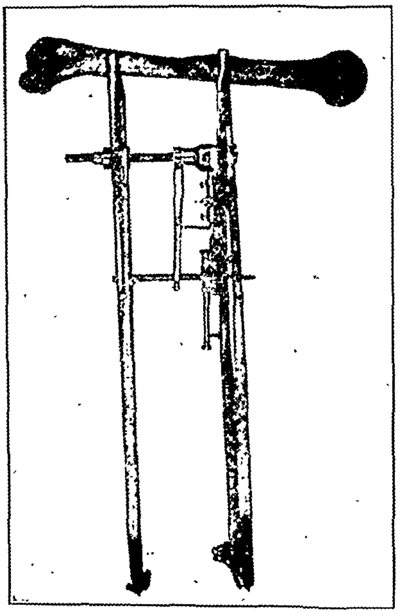


Fig. 4.—Ends of fragments in apposition.

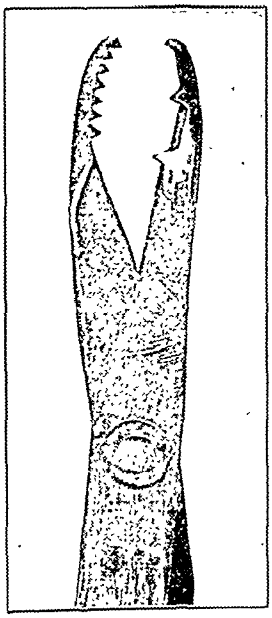


Fig. 5.—Grasping surface of forceps.

It consists of two pairs of long-handled forceps (Fig. 1), with two ratchets which work in planes at right angles to each other. The technic of application is the following:

After the point of fracture is freed, one clamp is placed on each fragment at right angles to its long axis and at points which will allow the forceps to be locked together with the clasp *C* (Fig. 2). The only other requirement before locking the forceps together is that the fragments be held parallel to each other or nearly so. Providing there is overriding, which is usually the case, the ratchet at *D* (Fig. 2), is worked to and fro until the shortening is overcome. Here I have made use of the jack-screw described by Gerster but have added the ratchet attachment which I find to be a decided improvement. This ratchet is reversible and after the fragments are moved laterally by the use of the ratchet *E* (Fig. 2), and brought into alignment, they may be made to engage with all of the precision one may desire (Figs. 3 and 4). An alternate upward and downward movement of the handles with the bar *F* (Fig. 2), as a fulcrum in addition to the movements given by the ratchets *D* and *E* gives one absolutely complete control over the fragments. In applying the fixation of Lane, a clamp may be used temporarily at the line of fracture, once the reduction is accomplished, and the other clamps may be released sufficiently to allow the metal splint to be slipped into place, when it is securely held by a second closure of the clamps while the screws are inserted. This first model, though crude, seems to fulfill the indications for which it was designed. Figure 5 shows the grasping surfaces of the forceps. They are designed to hold the bone securely, both before and after the Lane plate is in place. The distance of the ratchets from the field of operation renders the carrying out of an aseptic technic easy and certain. The handles are made long and flexible and are locked with chains. They will hold securely a bone of any size.

Suite 301, Reid Corner.

Density of Population and Infant Death Rate.—Based on the school census for 1914 it was found that the average number of people per in Chicago is 19.5. The wards having death rates above the average have an average of 49.7 people to the acre. It is not congestion alone, but congestion plus bad sanitary conditions that produce high infant death rate.

TUBES FOR INTRA-URETHRAL MEDICATION

MAX GOLDMAN, M.D., KANSAS CITY, MO.

For the introduction of various medicinal substances into the urethra I have devised, and have been employing for some time, a series of tubes modeled after the pattern of the Ultzmann instillation syringe. These tubes are made of sterling silver, and range in size from 14 F. to 24 F. In shape they follow the curve of the classical urethral sound, and all have capped ends with threads suitable for the attachment of the universal hypodermic syringe. By means of adaptors they can readily be adjusted to fit all glass and record syringes.

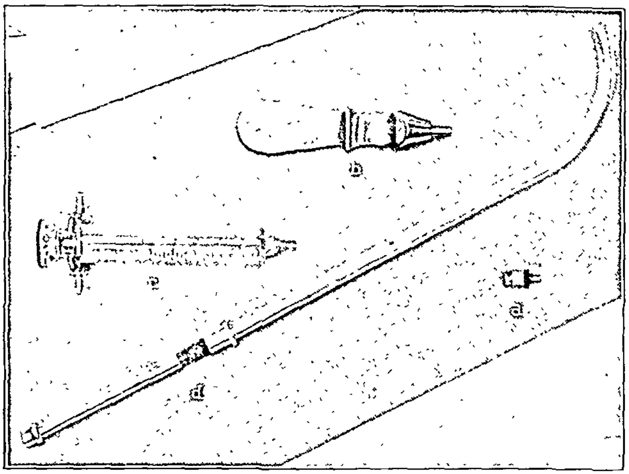


Fig. 1.—Urethral tube and accessories: (*a*) adaptor, (*b*) sound handle, (*c*) syringe, (*d*) irrigating nozzle.

There is also a sound handle, which is likewise adjustable, so that each tube can easily be converted into a urethral sound. In addition, another attachment is supplied in the way of a short silver tube, much like the ordinary glass irrigating nozzle, but having an adjustable small end for attachment to the tubes, to be used in cases in which irrigation of the bladder or urethra is desired.

The value of these tubes is enhanced by the fact that (1) they can be used (*a*) as sounds in any stage of the disease (for instance, urethritis); (*b*) not only as a means of instilling medicines in the posterior urethra, but also for placing any variable amount of an agent anywhere along the urethral canal from the vesical orifice clear out to the urethral meatus; (2) any size can be used, thereby avoiding irritation of the mucous membrane; (3) irrigation can be gently made with any one of the instruments, and followed by the injection of some medicinal agent without too much instrumentation; (4) the effect of both sound and tube is secured without the additional use of a sound proper.

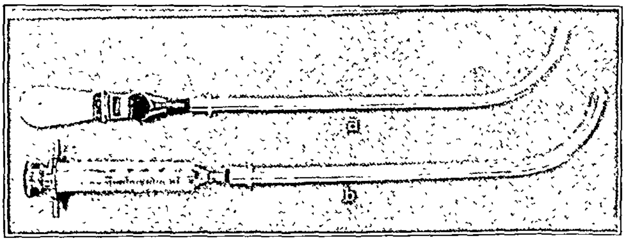


Fig. 2.—Urethral tube, converted into (*a*) sound, (*b*) syringe.

In chronic posterior urethritis or gleet this treatment will be found of the highest value; and in urethral stricture of long standing it is of much assistance when combined with other methods in softening up inflammatory indurations, and relieving congestion of the mucous membrane. After cystoscopic examinations or urethral examinations in which considerable instrumentation has been carried out, a local treatment with one of the tubes, an albuminate of silver preparation being placed along the canal from the bladder outward, will do much in the way of preventing a urethral chill or infection by its antiseptic and astringent effects on the mucous membrane.

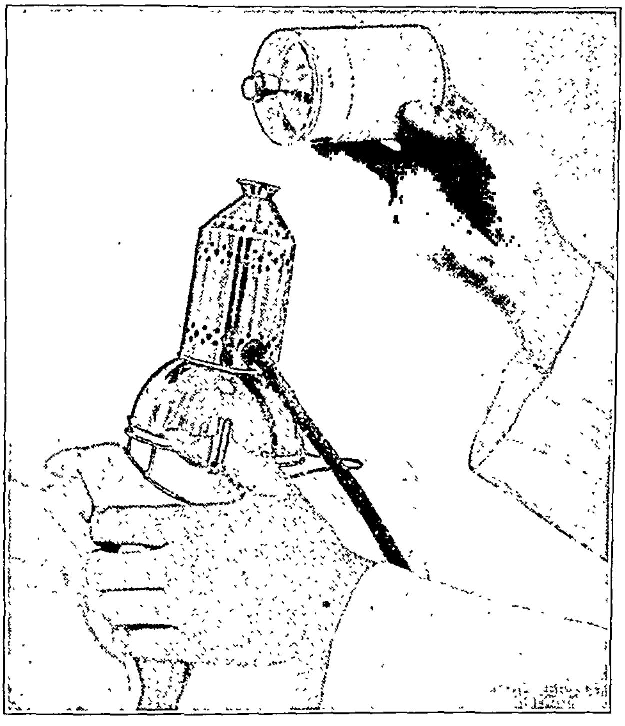
If undue difficulty is experienced in introducing the instrument, sterile glycerin may be used as a lubricant, but as a rule the medicinal agent itself is sufficient for this purpose.

1222-1223 Rialto Building.

A NEW METHOD FOR ETHER ADMINISTRATION

J. W. SNYDER, M.D., MICHIGAN CITY, IND.

I have endeavored to devise a simple means of securing a positive warm ether for anesthesia, a method which would employ the principles of the open mask and would have the added feature of a warm anesthetic. To do this I have employed the ordinary mask and have superimposed on it an electric heating coil. This coil is built about a seamless brass tube placed vertically to the top of the mask. The tube at various levels has wire gauze screens and plates which become heated from the surrounding coil, and which in turn heat the ether as it is passing through them. The coil is attached to the mask by means of a casing which extends part way down over the mask proper. The coil and casing may be quickly detached from the mask by a slight turn to the right, leaving the mask free. The coil is built for the usual 110 volt alternating city current, and is so constructed that it has a maximum temperature and will not become too hot if connected up for an indefinite time. In use the coil is attached to the city circuit and left on for about twenty minutes before the anesthetic is started. As previously indicated, the coil needs no regulating, as it will not become hot enough to decompose ether if left in circuit for hours, and it is only necessary to keep it connected to use it repeatedly.



Apparatus in use, showing thumb of left hand holding mask in position while the fingers support the jaw. The heavily insulated cord for connection to the city current is shown and also the manner in which ether is dropped through the coil.

The mask portion proper is prepared with layers of gauze as is usually done, and when the coil has been connected for a period of twenty minutes as previously described, it is attached to the mask, and both are placed over the patient's face. From this time on the anesthesia is by the ordinary drop method, except that instead of dropping ether on the mask, it is dropped through the brass tube inside the coil, and so reaches the mask proper as a warm gas. The only caution at this period is to give the ether more slowly and in smaller amounts than by the cold method, as it reaches the patient more quickly and more is available to the patient after being heated than when it is dropped cold on the mask. Towels may be placed about the mask as desired, but in the majority of cases they are not required, and in practically all they may be removed as soon as full narcosis is reached. In this way we give an abundance of air to the patient and as a result have little cyanosis. The patient's good color throughout has been quite remarkable. During the period the anesthetic is being crowded, a little of the ether may reach the gauze of the mask unchanged; but the coil will speedily regain its temperature as soon as the rate of administration can be somewhat slackened, and will again convert all of the ether to a gas. As the patient breathes, warm air is inhaled and exhaled, as can be readily noted, a quite different matter from breathing through a mask covered with ice crystals of the exhaled breath.

As to the results in the employment of this method, I have observed the following:

1. The patient goes to sleep more easily without coughing or holding his breath.
2. There is an absence of second stage excitement in the great majority of cases.
3. It is a dry anesthesia, with absence of mucus from the air passages, except in the deepest prolonged anesthesia.
4. Anesthesia is easily maintained.
5. As a rule, the patient is brighter on awakening and awakens in a shorter time.
6. Postoperative nausea and vomiting are absent.
7. By reason of conserved bodily heat we should expect shock to be less; and this conservation, together with absence of bronchial irritation, tends to lessen the occurrence of postoperative ether pneumonia and bronchitis.
8. The total amount of ether used is diminished by approximately one-half.

AN ACTUAL POCKET MERCURIAL SPHYGMOMANOMETER

Hugh Hamilton, M.D., Harrisburg, Pa.

I have found the various sorts of blood pressure instruments defective in one essential—all are bulky. Of the two kinds of mercurial and dial gages, the mercurial is esteemed the best. In an effort to devise an instrument which could be carried on the person without exciting curiosity in private practice, the one illustrated resulted.

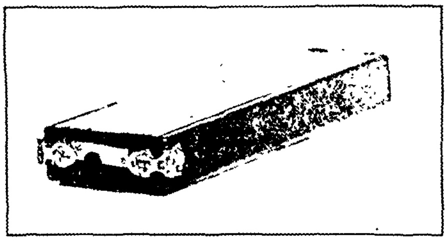


Fig. 1.—Pocket mercurial sphygmomanometer closed.

The mercurial hinge cock for the mercury is from an instrument made by Tagliabue. I claim only reduction in bulk and consequent mechanical arrangements, the whole apparatus weighing about 1 pound.

The photographs are precisely at the identical focus. Therefore the comparative size open and shut is represented in true proportion.

After careful comparison the mercurial column may be regarded as the most certain to give true results because it is fixed at a zero by gravity and not through artificial standards essential in all other devices dominated by springs as dial instruments, that may some time or other lose the zero, which automatic quicksilver will not do. In this little box I have added beside the U tube a thermometer for the room temperature. At the time of taking an observation of a "pressure" the body temperature is also then noted; across the space in the U tube about midway a level is inserted in the wooden support.

The wooden support for the U manometer of the sphygmomanometer is a free lid to the box. The edge under the curve of the U fits upright into a slot in the center of the box, fastened by braces rising from opposite ends of the box. On the bottom of the box are four blades that extend at right angles to the length of the box resembling when opened "a turtle." This little box is 8½ inches long, 2¾ inches wide and 1¾ inches thick or 22 by 7 by 3 cm. The hope is that this small (actual pocket) case may make the employment of the accurate mercurial sphygmomanometer available in clinical private practice and assist all in more precise prognoses.

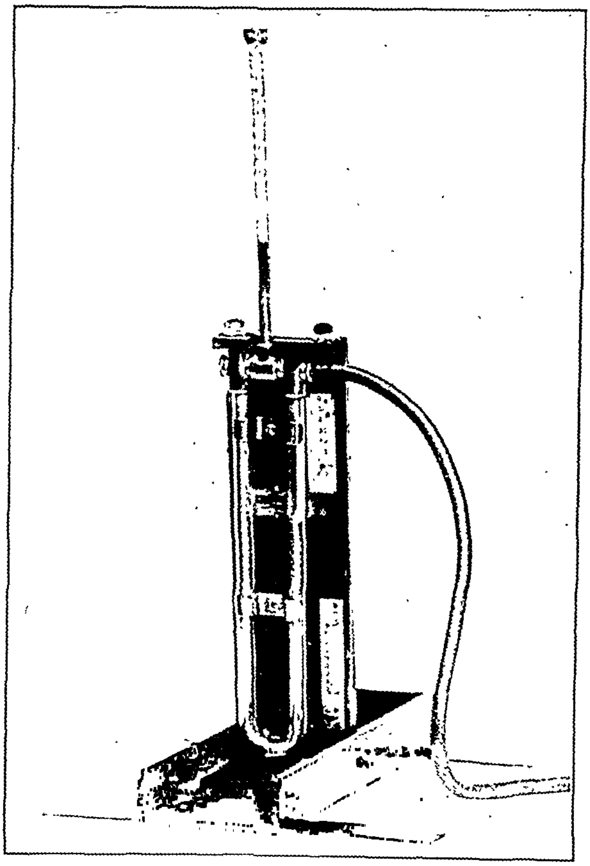


Fig. 2.—Pocket mercurial sphygmomanometer open for use.

ADJUSTABLE SPLINT FOR FRACTURES ABOUT THE ELBOW JOINT—CONVENIENT STAND FOR THE DIAGNOSIS OF PES PLANUS*

Willis E. Hartshorn, M.D., New Haven, Conn.

ADJUSTABLE SPLINT FOR FRACTURES ABOUT THE ELBOW JOINT

Fractures of the external and internal condyles of the humerus, T-fractures into the elbow joint and comminuted fractures in this region often afford occasions in which an adjustable angular splint can be used to great advantage. The splint, a description of which is here outlined, is distinctly a simple affair which can be made by any one in a comparatively short time. This fact offers the chief reason for its presentation. It consists of two wooden splints *A* and *B* (Fig. 1), the length varying in children and adults. These are connected by an ordinary door hinge, *C*. This is held in position by small stove bolts and nuts. The pin which ordinarily connects the two parts of the hinge is driven out. The inner edge of one side of the loop and the outer edge of the corresponding loop in each case is tongued and grooved with a file as noted in the sketch. A thumb bolt and nut is substituted for the original pin, and the splint is complete.

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* From the Surgical Service of the New Haven Dispensary.

The general utility is emphasized because it can be tightly folded together and placed in a bag. The two wooden parts can be removed by unscrewing the nuts on the heads of the bolts, and they can together or separately be used in fractures of the forearm, hands or fingers. Any degree of angle from the most acute can be formed in a moment's time without the removal of the splint from the extremity. A fracture of the olecranon can be treated in the extended position or in the semiflexed position. In fractures occurring in the upper third of the forearm where it is necessary to immobilize the elbow joint, it will be found useful, an anterior wooden splint supplementing the posterior. To tighten the splint so that it will hold firmly the angle needed, the thumb bolt is set with a wrench. With the ordinary commercial hinge, the loops at the center are a little too thick to admit of adjustment with the fingers alone. If desired, these loops can be filed thinner so that the thumb can be used to fix the angle; this, however, requires either a specially built hinge or the expenditure of a little more time in the making. Figures 2 and 3 show the application of the splint.

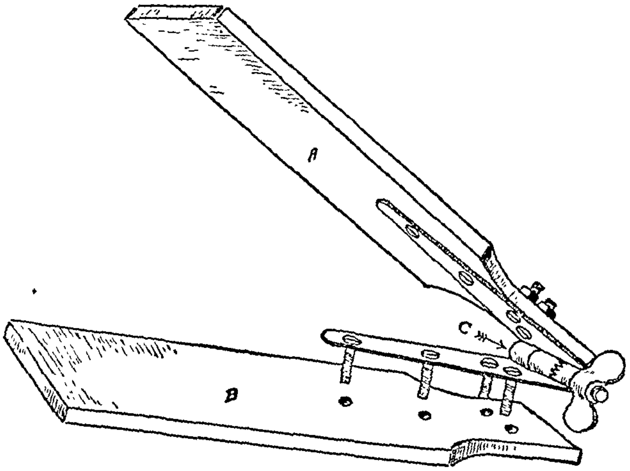


Fig. 1.—Adjustable splint.

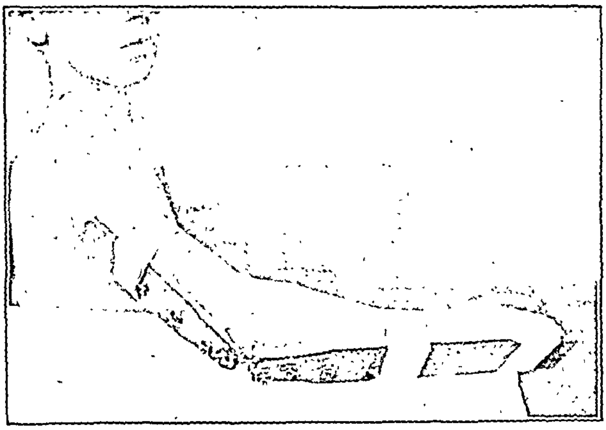


Fig. 2.—Adjustable splint applied to extended forearm.

CONVENIENT STAND FOR THE DIAGNOSIS OF PES PLANUS

At the suggestion of Dr. Joseph M. Flint of the department of surgery, who had observed in one of the European clinics visited by him a similar stand, the one illustrated was constructed at the surgical laboratory and has been found useful in the surgical clinic of the New Haven Dispensary as an adjunct to the general physical examination of patients. It deserves consideration because it presents a simple method of determining the condition of the arches when symptoms including pain in the legs and feet are presented.

In the illustration (Fig. 4) it will be noticed that the area of pressure on the sole of the foot is sharply contrasted with the normal tint of that portion free from pressure. In actual use this is much better shown. If the pressure area encroaches on the inner side of the foot, the various grades of pes planus are suggested. This simple apparatus does away with the need of the patient's standing on blackened or wet paper, is always ready for service, and gives instant indication of pressure wrongly directed or a weakened arch.

Fig. 3.—Adjustable splint applied to flexed forearm.

It consists of a box made of white wood, two sides of which are omitted. The mirror is inserted obliquely on the inside at an angle of 45 degrees. The top of the box should be of heavy plate glass at least half an inch in thickness. This thickness should be emphasized, as otherwise there might be danger of its breaking under the weight of the patient, and a serious accident occur.

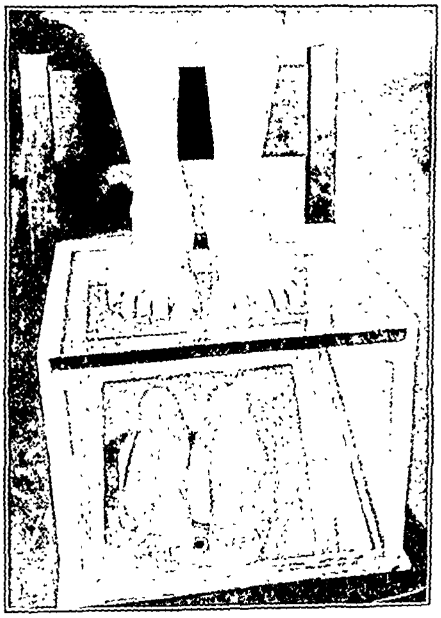


Fig. 4.—Stand for pes planus.

This simple stand is of course not of especial assistance in actual orthopedic work; but in the ordinary routine of a surgical clinic, it saves time and has proved an effective and valuable assistant in the diagnosis of arch conditions which are of such frequent occurrence in the type of patients frequenting a dispensary.

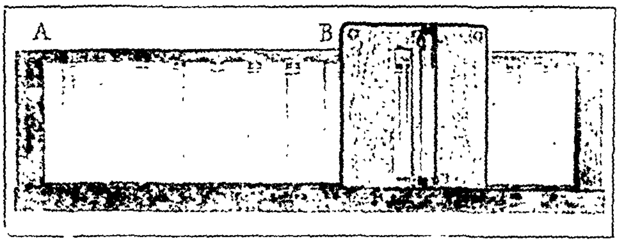
1138 Chapel Street.

A SIMPLE COLORIMETER FOR USE IN THE PHENOLSULPHONEPHTHALEIN TEST FOR KIDNEY FUNCTION

James S. Brotherhood, M.D., Grand Rapids, Mich.

The use of the phenolsulphonephthalein test of Rowntree and Geraghty[1] for estimating renal function has became quite widespread and were it not for the expense of the instruments for determining the percentage of phenolsulphonephthalein the test would enjoy even greater popularity.

The several instruments at present on the market (Duboscq, Autenrieth-Königsberger and Dunning colorimeters) are all reliable, but too expensive for the average practitioner. Acting on the suggestion of Drs. Cabot and Young[2] I have devised an instrument which is of simple construction and can be made at small expense. It has proved reliable and will give readings within 2 per cent., when compared with the Geraghty-Rowntree modification of the Autenrieth-Königsberger colorimeter, also when compared with known and measured dilutions of the standard solution.



Colorimeter for Use in Phenolsulphonephthalein Test for Kidney Function; *A*, wooden rack to hold test-tubes filled with dilutions of a standard solution of phenolsulphonephthalein; *B*, movable shield holding test tube whose phenolsulphonephthalein content is to be determined.

The instrument consists of a wooden rack to hold 14 small test-tubes (12 x 120 mm., the size used for the Wassermann reaction). Fitting over the rack and sliding in a groove in base of rack is an upright shield-piece which has two oblong apertures to permit the passage of light through the test-tube in the rack, and a second test-tube which is held in the shield and which contains the specimen whose phenolsulphonephthalein content is to be tested. The remainder of the shield, on either side, protects the observer from side light interfering with accurate matching of the colors in the test-tubes. The test-tubes in the rack are filled with varying percentages of the phthalein, from 5 to 70 per cent. The dilution is made from a standard solution of 6 mg. of phenolsulphonephthalein to one liter of distilled water, to which is added sufficient sodium hydrate (10 c.c. of 5 per cent. solution or a few cubic centimeters of concentrated solution) to bring out the color of the dye and to render the solution more permanent. It has been found of advantage to use chemically pure rubber corks and paraffin in sealing the tubes, as ordinary corks tend to discolor the solution. With ordinary care, and preventing the color tubes from being exposed to direct sunlight for long periods, there will be little if any fading of the color and this simple apparatus will give excellent service.

The method of estimating the quantity of phenolsulphonephthalein excreted, using this colorimeter, is the following: Dilute the specimen of urine to about 200 c.c. with water, and render alkaline by adding 10 c.c. of 5 per cent. solution of sodium hydroxid and the further addition of water to make it measure 1 liter. With this dilution fill a test-tube the same size as used in the rack and place in front of aperture in shield; then by moving shield along the rack to a point where a color tube in the rack most nearly matches the specimen, the percentage of this color tube will correspond to that of the specimen tube and represent the percentage of the dye (phenolsulphonephthalein) secreted.

Occasionally it is found that after adding the sodium hydroxid to the specimen the coloration is slight; the dilution should then be made to 500 c.c. instead of 1,000 and the percentage reading divided by 2. Directions for application of test and phenolsulphonephthalein in sterile ampoules (containing 6 mg. to 1 c.c.) may be obtained from Hynson, Westcott and Company, Baltimore.

Grand Rapids Clinical Laboratory.

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[1] Geraghty, J. T., and Rowntree, L. G.: The Phenolsulphonephthalein Test for Estimating Renal Function, The Journal A. M. A., Sept. 2, 1911, p. 811. Rowntree, L. G., and Geraghty, J. T.: The Phthalein Test, Arch. Int. Med., March, 1912, p. 284. Geraghty, J. T.: A Study of the Accuracy of the Phenolsulphonephthalein Test for Renal Function, The Journal A. M. A., Jan. 18, 1913, p. 191; The Value of Renal Functional Tests to the Surgeon and the Limitations of These Tests, New York Med. Jour., Aug. 15, 1914.

[2] Cabot, H., and Young, E. L.: Phenolsulphonephthalein as a Test of Renal Function, Boston Med. and Surg. Jour., Oct. 12, 1911, p. 549.

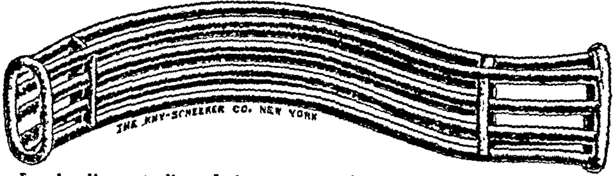
A CONTROLLER OF THE TONGUE AND PALATE DURING GENERAL ANESTHESIA*

Joseph E. Lumbard, M.D., New York
Instructor in Anesthesia, University and Bellevue Hospital Medical College; Anesthetist to Harlem, Knickerbocker and Lying-in Hospitals

It is of great importance to maintain an unobstructed air way during the administration of a general anesthetic. The prevention of obstruction to free breathing through the upper air passages is one of the most important details with which the anesthetist has to cope. The most common form of respiratory obstruction, during anesthesia, is the falling back of the tongue into the pharynx, owing to the relaxation of the muscular support.

There are several instruments to overcome this difficulty, known as air ways, breathing and pharyngeal tubes. Those best known are the tubes devised by Hewitt of London and Connell of New York. Both give excellent results, but are open to the great objection of becoming obstructed with mucus.

To overcome this I have devised an instrument which consists essentially of a double row of four bent wires, running parallel, about an eighth of an inch apart, and firmly held together by wire bands, two at each end. The instrument measures 5½ inches in length, three-fourths inch in width and one-fourth inch in thickness: It presents a double curve which adapts itself to the dorsum of the tongue. The instrument is easily introduced, by placing the pharyngeal end between the tongue and the soft palate, until it rests in the pharynx. No attempt should be made to do this until the patient is well anesthetized. The use of the instrument is also indicated in obstructions of the nose and mouth. It obviates the barbarous methods of tongue retraction and jaw holding, and an instrument of this nature should be considered as an essential part of every anesthetist's outfit.



Lumbard's controller of the tongue and palate for general anesthesia, thirteen-twentieths actual size. The pharyngeal end is at the left.

ADVANTAGES

1. It is easily and quickly introduced. No mouth-gag or manipulating of the tongue are necessary.
2. It will not clog with mucus, which is the chief defect of similar instruments.
3. It is easily kept in position.
4. It is quickly cleansed.
5. It will not conduct a fluid anesthetic to the throat, an accident that is liable to occur with other instruments.
6. It cannot be compressed by the teeth or gums.

1925 Seventh Avenue.

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* Shown at the New York Academy of Medicine (Section on Surgery), March 5, 1915.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 1657)

XX

CIRCULATORY DEPRESSANTS

It is well known that, though the blood-pressure undergoes frequent minor changes, it is under the control of a coordinated mechanism which tends to maintain a close approximation to a certain level from day to day during health. Even after the administration of drugs which affect the distribution of the blood, any considerable change in blood-pressure is usually only fleeting. When the vessels of the splanchnic region are constricted, those of the periphery usually undergo a compensating dilatation; if the constriction of the splanchnic vessels is sufficient to cause a rise of blood-pressure, the heart is commonly slowed, so that the pressure in the large arteries tends strongly to remain constant.

The blood-pressure may be lowered by diminishing the amount of blood in the circulation; by dilating the vessels, or by diminishing the activity of the heart by decreasing either its force or its rate.

Venesection, or bleeding, was formerly employed widely, but this has fortunately fallen largely into disuse. Drastic cathartics were also used at one time somewhat more freely than at present; diaphoretics and diuretics remove liquid too slowly to be satisfactory in those emergencies in which vasodilators are commonly used. The blood tends strongly to maintain a uniform concentration, and when much fluid is removed by diuretics or diaphoretics this is largely replaced in the circulating blood by fluid drawn from the tissues.

There is an even greater tendency on the part of the vasomotor mechanism to compensate for changes induced in the vessels of different areas, and the vasodilators often exert only an inconspicuous and brief influence on the general blood-pressure.

The rate of the heart-beat is influenced by many factors which tend to regulate it according to the demands of the circulation. Consequently, the heart often responds to the systemic actions of drugs in a manner directly opposite to that which would result from the action on the heart alone.

Vasodilators: The Nitrites

Therapeutic doses of many drugs cause dilatation of the vessels of certain areas, and many cause general vasodilatation when toxic doses are given.

Attention has been called to the dilator action of the antipyretics on the vessels of the skin whereby they promote sweating and the elimination of heat. They are not used to lower the general blood-pressure, however, even though this does result from their collapse action.

Alcohol also causes dilatation of the peripheral vessels even with small doses, and it was used formerly to lower blood-pressure. Toxic doses of hydrated chloral cause a marked vascular dilatation, and it is commonly stated or implied that therapeutic doses also lower the blood-pressure. Any such action, however, is commonly incidental to its narcotic effect and not due to its vasodilator action, which is unimportant except with toxic doses.

Guthrie is credited with having been the first to observe the effects of the nitrites in causing flushing of the face. Lauder Brunton is chiefly responsible for their introduction into therapeutics about 1867, after he had observed the effects of amyl nitrite on a patient who suffered from anginal attacks.

Tracings of the pulse taken by him after the administration of amyl nitrite during one of these attacks do not show any essential difference from tracings of the normal pulse, the amyl nitrite having overcome the vasoconstriction which accompanied the attacks.

The actions of the several nitrites, including amyl nitrite, glyceryl nitrate or nitroglycerin, which acts as a nitrite, and sodium nitrite, are qualitatively quite similar, though they differ somewhat in duration.

The nitrites have little direct action on the higher parts of the brain, except for the dilatation of the cerebral arteries. This is attended with a sense of fulness in the head and diziness, with some disturbance of the special senses, and often with headache.

The effects on the medullary centers are direct and indirect, but it is not easy to determine which of these is the more important in some cases.

The vasomotor centers are certainly depressed after the administration of small doses of the nitrites, but this depression is probably not alone responsible for the vasodilatation which results, especially after large doses. The vessels of the face and neck—the so-called blush area—are affected first, and the vessels of the skin of the upper part of the body in general appear to dilate before the splanchnics, but these also participate in the effects of therapeutic doses.

There has been a good deal of discussion concerning the seat of the dilator action of the nitrites, and some authors attribute the effect almost entirely to the action on the musculature in the vessel walls, while others consider this wholly secondary and attribute the effect mainly to the depression of the vasomotor centers.

The question is of more than purely theoretic importance, because it is frequently stated that the nitrites have an especial action on the coronaries. It seems probable that they have no specific action on the coronaries, but that the benefit which they confer in conditions attended with high blood-pressure is due mainly to the relief of an overburdened heart by diminishing the resistance. Attention has already been called to the physiologic necessity for the coronaries to respond to increased cardiac action with dilatation when other arteries are constricted, from which it is evident that they do not behave toward all agents in the same way that other arteries do.

It is uncertain whether the nitrites have any important direct action on the other medullary centers, though the functions controlled by these centers show active changes. It is sometimes stated that the vagus is depressed, leading to an increase in the heart-rate. The heart, however, responds normally to lowered blood-pressure by an increase in the rate of the beat.[1]

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* This is the twentieth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

[1] The tone of the vagus depends to a great extent on the blood-pressure in the medulla, and when this falls, the lowered vagus tone permits of acceleration through the action of the accelerator center. The delicacy of this regulating mechanism in the dog is such that it is extremely difficult at times to cause a notable fall in the blood-pressure by administering amyl nitrite to that animal, the heart becoming much faster with a slight fall. The rabbit lacks this delicate control and amyl nitrite causes a prompt fall of the blood-pressure.

and it is not probable that vagus depression is due largely to the direct action of the nitrites. At any rate, it is important to remember that the heart is not injured by therapeutic doses of the nitrites, since these are used in precisely those conditions in which the heart suffers from overexertion.

After the administration of amyl nitrite the respiratory center behaves as it does during fall of blood-pressure from other causes, that is, it responds to the stimulation of carbon dioxid (or lack of oxygen), and increased respiration results. There is no reason to suppose that the nitrites stimulate the center directly.

The text-books state that enormous doses of the nitrites result in the formation of methemoglobin. This does not occur, however, with doses such as are used therapeutically; it is of no interest to the clinician, except in possible cases of poisoning.

Other smooth muscle beside that of the arterioles is depressed by the nitrites, and spasm of the bronchial muscles is said to be relieved by the fumes from the burning of potassium nitrate mixtures, which contain nitrites.

The nitrites cause venous dilatation, and this probably contributes somewhat to the fall of blood-pressure, by providing reservoirs for the blood.

The nitrites are oxidized in the body and appear in the urine chiefly as nitrates.

In addition to the effects of nitrites which have been discussed, other secondary effects will be observed at times,[2] but these are inconstant, and are to be explained by the differences in the distribution of the blood which are seen at different times. If the renal vessels are dilated to a disproportionately greater extent than those of the general circulation, there may be an increased secretion of urine, but diuresis in such cases is not to be attributed to any direct action of the nitrites on the kidneys.

ACONITE

The actions of aconite are those of its principal alkaloid, aconitin, but tincture of aconite is used much more frequently than the alkaloid, because of the difficulty of obtaining aconitin of constant activity, and because of the mechanical difficulties involved in the use of a drug of such extraordinary potency.

The actions of aconitin on the central nervous system are difficult of analysis, but these consist of stimulation and subsequent depression.

The heat-regulating center (if we may refer to the coordinating mechanism as a center) seems to be influenced by aconitin in the same way in which it is by the antipyretics, and aconite has a distinctly antipyretic action.

The vagus center is stimulated, and Cushny states that aconitin affords one of the best means of obtaining pure slowing of the heart. Fatal doses affect the heart partly through the vagus, and it is stated that larger doses of aconitin are survived if atropin be given than without it.

Aconitin stimulates the respiratory center, but this shows a strong tendency to become depressed, and death from aconitin frequently results from paralysis of the respiratory center. So great is the tendency of aconitin to cause depression that it cannot be used therapeutically as a respiratory stimulant.

Vomiting often occurs late in the state of poisoning, this being due to stimulation of the vomiting center (unpublished experiments).

The direct action on the vasomotor centers does not appear to be constant, and there may be either reflex stimulation or depression, but there seems to be some evidence that vasodilatation is the more common effect of aconitin action.

The effect of aconitin on the heart is due to vagus and accelerator stimulation and to the direct action on the heart itself. There is apparently a brief period during which the heart beats more energetically because of accelerator stimulation, but this is unimportant, and with the slowing from vagus stimulation there is no corresponding increase in the strength of the contractions, so that less blood is expelled from the heart in a unit of time, and in consequence the blood-pressure falls. With severe poisoning from aconitin the heart becomes very irregular; in fact, various forms of irregularity are seen in the exposed heart of an animal poisoned with it, the heart finally stopping in diastole. It is more than possible that aconitin causes a fall of blood-pressure through its combined actions on the cardiac muscle, the vagus center and the vasomotor centers.

Aconitin causes tingling when applied to the tongue or to the skin in such a way that it penetrates to the sensory nerves, and when large doses have been taken this tingling is manifested in the same way as after local application. It is one of the most typical symptoms of aconite poisoning, and usually serves to call the patient's attention to something being amiss in such cases.

Aconite was formerly administered therapeutically to the point of commencing tingling in the fingers. The sensory stimulation is followed by anesthesia, but this action is much less pronounced with aconitin than with cocain, or even than with atropin, to both of which aconitin is closely related chemically.

Aconitin is absorbed rapidly from the alimentary canal, and, to some extent, from the unbroken skin when applied in the form of an oleate or liniment.

Poisoning by aconite is not rare, but less frequent perhaps than formerly, when aconite was widely used for a great variety of complaints.

Absorption takes place so rapidly that there is usually little time for treatment after a fatal dose has been swallowed. Tingling and irritation of the mouth and throat are observed soon after the poison has been taken. This is due to the local action, and soon after the poison is absorbed the tingling is felt in the finger-tips, and later over a large part of the body. Nausea, vomiting and diarrhea may occur. The respiration suffers severely as well as the circulation, and death probably results from a combination of the actions on the heart and the respiration.

Of course, any poison remaining unabsorbed should be removed from the stomach by washing; atropin is said to be antidotal, but it is probably of limited value in most cases, and artificial respiration would be preferable to the atropin action on the respiratory center.

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2. The question has been raised frequently whether the small amounts of nitrites present in flour bleached by the several processes in common use are injurious to health and whether flour bleached in this way is less digestible than unbleached. There is no evidence that minute amounts of nitrites are injurious, and it cannot be said that the flour so bleached is less digestible than the unbleached, but on the other hand, we are unable to say that small amounts of the nitrites continued over long periods are without deleterious influence on the health, and there still remains the larger subject on which there can be no discussion, that bleaching is often employed for fraudulent purposes.

A single dose of 1 mg. ($\frac{1}{60}$ grain) of atropin may be given, and repeated once if it causes improvement in the respiration or if it fails to abolish the vagus influence on the heart.

The patient is kept as quiet as possible, and heat is applied to the body.

Tincture of aconite probably undergoes deterioration when kept long, and dogs sometimes withstand enormous doses even when these are injected intravenously. It is probable that the fatal dose of pure aconitin for a man is only a few milligrams.

THERAPEUTIC USES

The nitrites are used, as already indicated, for reducing blood-pressure. Amyl nitrite finds its especial field of usefulness in giving relief in attacks of angina pectoris, in which it is often supposed to abolish spasm of the coronary arteries. It seems much more probable that amyl nitrite relieves this distressing and even terrifying condition by abolishing the excessive resistance against which the heart contracts.

It may be used to relieve any pain which is due to arterial spasm, to prevent or relieve epileptic convulsions, and in bronchial asthma.

Amyl nitrite is sometimes used to stop hemorrhage when this results from the rupture of a vessel in the lungs, brain or elsewhere through very high blood-pressure, but it is apt to do harm if the hemorrhage has progressed to the point that the general arterial pressure is already low. Owing to the brevity of its action it is unsuited to those conditions in which a prolonged effect is necessary.

Nitroglycerin is used much like amyl nitrite, but its action is not induced instantaneously as that of amyl nitrite is, and it is therefore employed where a slower and somewhat more lasting action is desired, as in the high blood-pressure of arteriosclerosis and of nephritis, as well as between the attacks of angina pectoris.

It is sometimes used with digitalis with a view to overcoming the reputed vasoconstrictor action of the latter. It has been brought out in the discussion of digitalis actions that this direct vasoconstrictor action is negligible, and that digitalis may actually cause a fall of blood-pressure when this was previously abnormally high.

It is probable that nitroglycerin is seldom of any benefit in influencing the action of digitalis.

Sodium nitrite is used for exactly the same purposes as nitroglycerin, and it probably has no advantages over the latter.

Erythrol tetranitrate (for description see New and Nonofficial Remedies) is used for the same purposes as nitroglycerin, over which it has the advantage of exerting a more prolonged action. It is very expensive, and is said to be even more prone than nitroglycerin to cause severe headache.

The vasodilator actions of alcohol have been referred to; spirit of nitrous ether has a feeble vasodilator action, and is used to promote diuresis and diaphoresis.

In some cases the splanchnics appear to be incapable of dilating in response to the action of the nitrites, and in such cases the slight fall in the blood-pressure, and probably some direct depression of the vagus center, result in such an increase in the heart-rate that the fall is converted into a temporary rise of pressure.

Aconite is used *occasionally* as an antipyretic and diaphoretic in fever patients of sthenic type, or early in other febrile conditions — not late during protracted fevers, such as typhoid. It may be used cautiously when it is desired to reduce the blood-pressure, if the heart is in good condition. There is little scientific basis for its continued internal use in therapeutics.

It is used externally in the form of liniments and ointments for the relief of neuralgias. Absorption may occur from the unbroken skin, and it should be used only with caution. It should not be applied to mucous membranes, from which it is absorbed promptly.

Veratrum viride is sometimes used for the reduction of the extremely high blood-pressure often seen in eclampsia. While good results have been reported in some cases, the action of the drug is not sufficiently understood to justify its use in general practice, and there is little reason to doubt that it sometimes precipitates a catastrophe in this dangerous condition. Veratrum viride is not recognized in "Useful Drugs," nor is it recommended here. It probably owes any popularity which it has to its former exploitation as a proprietary preparation under the name of "Norwood's Tincture."

DOSAGE

Amyl nitrite is commonly used in the form of glass capsules, or "pearls" containing from 0.2 to 0.3 c.c. (3 to 5 *minims*). These are carried about by the patient, and at the approach of an attack one of the "pearls" is broken in the handkerchief and inhaled.

Amyl nitrite is sometimes sold in sealed glass containers holding about 25 gm. (1 fluidounce).[3] These tubes should never be grasped in the bare hand. Before being opened they should be cooled, and wrapped in several folds of a towel loosely; the operator, when filing the neck, should point the tube away from his face.

Nitroglycerin being explosive, is commonly used in the form of the spirit or in tablets. The average dose of spirit of nitroglycerin is 0.05 c.c. (1 minim), which is to be repeated several times daily when it is desired to maintain the effect. It gradually loses its capacity for lowering the blood-pressure, owing to the development of habituation, and the intensity of the headache which it frequently causes is a great disadvantage in its use.

Spirit of nitrous ether, popularly used as a diuretic, has, to a limited extent, the vasodilator action of other nitrites, but is now seldom used. The average dose is 2 c.c. (30 minims).

The dose of sodium nitrite is about 0.05 gm. (1 grain) repeated several times daily. It is always administered in solution, but it is prone to undergo oxidation with the formation of the nitrate; hence only enough of the solution should be prepared to last a short time.

Aconite is almost invariably administered in the form of the tincture, of which the dose is 0.2 c.c. (3 minims) repeated every hour until the desired effect is produced. Smaller doses may be given with correspondingly greater frequency.*

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[3] The following experience may be of interest: The neck of one of these tubes was filed with the intention of opening it, when it exploded violently; a second tube was cooled in a freezing mixture of salt and ice, and the neck then filed; there was a severe explosion; several tubes were then opened after wrapping them in towels, but in every case explosions of extreme violence resulted. The makers are well-known chemists, but they have been unable to explain the extreme violence with which these tubes exploded.

* Owing to lack of space the materia medica of this group is omitted from The Journal. It will be included when this series is published in book form.

DIURETICS

The secretion of urine may be influenced by drugs in many different ways; hence the diuretics do not constitute a well-defined group, and in fact, few of them are used as diuretics exclusively. Some of the diuretics have been discussed among other groups, and others will be discussed elsewhere.

Sollmann[1] classifies the diuretics as follows:

1. Those acting through changes in the general circulation.
2. Those acting purely by local irritant stimulation of the kidney cells.
3. Those acting by non-irritant stimulation of the kidney cells.
4. Those acting mainly by salt action.

Under normal conditions the rate at which the urine is secreted varies with the volume of blood which passes through the kidneys in a unit of time, but there is a minimum blood pressure (about 40 mm. of mercury), below which the kidneys do not function. On the other hand, intense constriction of the renal arteries causes a diminution of the secretion even though the general blood pressure may remain high.

DIGITALIS BODIES

The actions of the digitalis bodies have been discussed and it is necessary to call attention here only to the fact that they cause diuresis by improving the circulation. There is no evidence that they act on the kidneys directly, and in fact they do not cause diuresis in healthy man, since they do not improve the normal circulation.

VASODILATORS

While our knowledge of the actions of the vasomotor nerves in controlling the circulation is considerable, we do not know much about the changes which drugs cause in the renal circulation under different conditions, unless they induce diuresis, which may be accepted as evidence that the circulation has been improved. But improvement means only a closer approximation to normal conditions, since either vasodilation or vasoconstriction may interfere with the secretion.

We may conclude then that the vasodilators will facilitate the secretion of urine when they abolish an excessive constriction of the renal arteries without causing too great a fall in the general blood pressure, but we are unable to state in what cases this beneficial effect will follow their use. The nitrites and other vasodilators have been employed in many cases in which they could hardly be of benefit, for example, they have been recommended frequently to overcome the vasoconstrictor action of the digitalis bodies, but, as we have already pointed out, the *direct* vasoconstrictor action of therapeutic doses of the digitalis bodies is wholly negligible, and when an improvement in vascular tone follows their use it is due to the general improvement in the circulation, and does not call for vasodilators.

It is hardly probable that the vasodilators can often have any important action in promoting diuresis, but the indications for their use in any case may be deduced from the discussion of their actions.

The drugs of the caffein group influence the general circulation but their most pronounced diuretic action is exerted on the kidney directly.

IRRITANTS

The second class of drugs—those which act through their local irritant action on the renal cells—embraces the volatile oils, which have been mentioned under urinary disinfectants, and certain glucosidal bodies, such as scoparin, and some others which are not used therapeutically for their diuretic action.

The most important drug usually classed among the irritant diuretics is calomel. There is no question that large doses of calomel are capable of causing renal irritation, hence caution is urged when it is employed in nephritis, and some authorities state that it should not be used when there is the least suspicion of nephritis. That view would appear to be extreme, however.

An entirely different theory has been advanced recently to account for the diuretic action of calomel. It causes increased peristalsis in the small intestine resulting in a lessened absorption, and consequently in the emptying of a larger amount of fluid into the colon than normally. It is explained that calomel does not affect the large intestine markedly, and the excess of fluid in the colon undergoes rapid absorption. In the meantime the composition of the blood has been restored to the normal through the withdrawal of fluid from the tissues to compensate for that excreted into the small intestine, and this rapid absorption of fluid from the large intestine induces hydremia and consequent diuresis. It is urged that the copious diuresis which accompanies the absorption of small amounts of calomel prevents the latter from exerting its irritant action on the renal cells.

It is a matter of common experience that calomel diuresis is attended with greater improvement in the condition of dropsical patients, than is seen when it causes the removal of water by purgation.

There is no apparent advantage in securing the absorption of water from the colon only in order that it may be excreted by the kidneys, hence we must suppose that the advantage is due to a milder action whereby the sudden removal of a large amount of fluid from the circulation is avoided.

The combination of opium and calomel causes diuresis more certainly than does calomel alone, and this is explained on the basis that the delayed peristalsis permits of a greater absorption of calomel, or according to the view of calomel action just discussed, it permits of a greater absorption of water from the large intestine.

WATER

Several investigators have found that a given amount of water administered by the mouth causes a greater diuresis than an equal amount injected intravenously or subcutaneously. It has been suggested that some substance which is actively diuretic, is absorbed with the water from the intestine, and that it is the absence of this hypothetic substance in the circulation which accounts for the slighter diuresis when the water is injected intravenously. It is probable that the diuretic action of calomel may stand in relation to this observation.

CAFFEIN GROUP

The drugs of the caffein group are the only ones of importance which induce diuresis through their non-irritant stimulation of the renal cells.

We have called attention to their influence on the heart, and on the vasomotor system, and it remains to discuss their specific action on the renal cells.

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[1] Sollmann: Pharmacology, Philadelphia, W. B. Saunders Company, 1906, Ed. 2, p. 546.

It is generally held that they act on the tubules, stimulating them to increased secretion, but there is another theory of their action which is diametrically opposed to this view, according to which caffein inhibits the capacity of the tubules for reabsorbing water, with a consequent increase in the amount eliminated.

Whichever theory is correct, the essential fact for the clinician is that caffein and theobromin act on the kidneys and do not cause irritation, hence they may be used in the presence of nephritis.

It is sometimes maintained that these agents cause a specific dilation of the renal vessels, but the vessels of every organ dilate when it begins to function more actively, and it is impossible to say whether the renal dilation is the cause or effect of renal activity.

OTHER MEANS OF CAUSING DIURESIS

The rate of secretion of urine varies with the viscosity of the blood, and anything which causes water to pass into the circulation tends to promote the secretion of urine. This may be accomplished by causing water to be absorbed from the body tissues or from the alimentary tract.

The absorption of tissue fluids into the circulation may be accelerated during health by the intravenous injection of a saline solution which has a higher concentration than the blood. The renal cells offer little resistance to the passage of sodium sulphate, and when a 2 per cent. solution is injected intravenously, tissue fluid passes into the circulation and active diuresis is induced. This is one of the most active diuretics at our command, and may be depended on to hasten the elimination of those poisons which are excreted by the kidneys. Obviously, this method is only suited for emergencies.

Venous stasis favors the passage of water from the blood into the tissues, and conversely, the relief of venous stasis is commonly followed by the return of the water from the tissues into the circulation, with the resulting hydremia and diuresis.

Even a comparatively small initial change of this sort may institute diuresis with the ultimate elimination of enormous quantities of water with progressive improvement in the circulation and relief of the stasis; hence any drug which causes improvement in the gen-
mally nigenlation in dropsical conditions will act as a
It is probable idneys are capable of functioning.
benefit in influencing tuabsorbability of sodium sulphate
Sodium nitrite is used for e. it does not usually pass
as nitroglycerin, and it probably circulation with suffi-
over the latter. s, but the acetate
Erythrol tetranitrate (for description promptly and
Nonofficial Remedies) is used for the same also com-
as nitroglycerin, over which it has the advanhe urine
exerting a more prolonged action. It is very e.
sive, and is said to be even more prone than nit the
glycerin to cause severe headache. ge

The vasodilator actions of alcohol have been referred to; spirit of nitrous ether has a feeble vasodilator action, and is used to promote diuresis and diaphoresis.

In some cases the splanchnics appear to be incapable of dilating in response to the action of the nitrites, and in such cases the slight fall in the blood-pressure, and probably some direct depression of the vagus center, result in such an increase in the heart-rate that the fall is converted into a temporary rise of pressure.

Aconite is used occasionally as an antipyretic and *diaphoretic in* fever patients of sthenic type, or early are obvious. When the circulation is impaired and water accumulates in the tissues, it causes distress, and its removal becomes imperative. This may be accomplished in part by sweating and purgation, but diuresis affords the most satisfactory method of disposing of the accumulations when the kidneys are capable of functioning normally.

It is not feasible to consider all of the therapeutic indications for diuretics, and only a few of them will be discussed here.

We do not know enough about the toxic substances (toxins) which are formed during disease and the best method of securing their elimination to enable us to state just what measures should be employed, and therefore we do not know to what extent the use of active diuretics will prove beneficial in many cases. We know that certain vegetable poisons at least are excreted practically unchanged in the urine, while others are decomposed to a greater or less extent before they are eliminated, and still others are removed from the circulation by the liver, and exert practically no effect on the kidneys, and their elimination is practically unaffected by diuresis.

Our knowledge of the fate of many of the vegetable poisons is fragmentary, and we are often unable to state whether they are eliminated by the kidneys, or by the liver, or are destroyed in the organism.

Even in those cases in which we know that a poison is eliminated by the kidneys, we are seldom able to state whether it is excreted through the glomeruli or through the activity of the tubular epithelium, hence we do not know which of the diuretic drugs is to be preferred in a given case. Fortunately, diuresis, however induced, appears to favor the elimination of many of those poisons which are excreted through the kidneys, and the necessity of choosing one diuretic rather than another does not appear to be pressing, and in cases of acute poisoning by a drug such as strychnin, which is excreted mainly by the kidney, and when the necessity of securing its rapid elimination is urgent, one's efforts should be directed toward inducing copious diuresis by the most effective means at hand.

When poisons which are capable of inducing nephritis have entered the circulation, it seems probable that we should secure the largest possible flow of blood through the kidney vessels, as well as the most copious diuresis; hence caffein and theobromin, which are said to cause a specific dilation of the renal vessels, probably deserve consideration in addition to other diuretic measures.

It is surprising how little attention has been paid to the possibilities of extreme diuresis and flushing of the kidneys to the maximum in cases of poisoning with mercuric salts, which have become all too common of late, but it is not to be understood that this subject has been wholly neglected, and diuresis does play an important rôle in the treatment in such cases. We do not believe that the possibilities of the treatment have been appreciated, however, just as the possibilities of the elimination of strychnin during intense diuresis have been overlooked, even though every text-book mentions diuretics as a part of the routine treatment such cases.

The choice of diuretics in a given case is often piric though there are certain conditions which nand a definite method of procedure.

When there is an accumulation of water in the tis- (dropsy) due to the faulty action of the heart and its failure to maintain an adequate circulation, the digitalis bodies are of the first importance, and their action may be supplemented advantageously by that of caffein. Since it is necessary to rid the body of water it would evidently be improper to secure diuresis through the administration of large amounts of fluid. The different drugs of the digitalis group contain irritant principles and it is barely possible that some of these may induce diuresis after the manner of the second class mentioned above, that is, those acting purely by their irritant action on the renal cells, but, on the other hand, the absence of diuretic action during health from these agents, and the fact that they do not cause diuresis in dropsical conditions unless they improve the circulation through their cardiac actions, is strongly indicative of their acting as diuretics only through the changes in the general and renal circulation. The irritant digitalis principles are probably excreted almost entirely through the liver, and when they are excreted through the kidney this appears to take place so slowly that they are never in sufficient concentration to cause severe irritation. At any rate the digitalis bodies do not cause serious renal irritation and they are used in the presence of nephritis.

The action of the digitalis bodies may be supplemented by diuretics which cause dilation of the renal vessels (caffein), or by those which cause hydremia (calomel, potassium acetate).

Just as digitalis bodies are indicated when the cardiac action is impaired, so they are contra-indicated when the heart beat is normal, and in such cases dependence should be placed in drugs which diminish the viscosity of the blood, or those which act on the kidneys directly when diuresis is desired.

There is seldom any special indication for the use of the volatile oils as diuretics alone, but they are sometimes used in small doses which produce only a mild stimulation of the kidney cells.

The injection of physiologic salt solution commonly causes a marked diuresis, but the kidney may become resistant to the passage of sodium chlorid as the result of continued administration or under pathologic conditions, in which case the administration of salt leads to a diminution of urinary secretion. It then becomes necessary to reduce the ingestion of salt to a minimum. Attention has been called recently to the slow intravenous injection of hypertonic solution of glucose when sodium chlorid is contra-indicated.

Venous engorgemer[illegible] minal veins which results from [illegible] interferes with the renal circulation by retarding the outflow, and, as is very well known, anything that interferes with the free outflow from the renal veins interferes with the secretion of urine. Hence anything which relieves the venous stasis promotes the secretion of urine.

Active cathartics which remove a large amount of water may suffice to relieve the interference with the renal circulation. In like manner dropsical accumulations may interfere mechanically with the venous return and thereby lessen the secretion of urine, and in an analogous manner the purgative sometimes affords relief by removing the water which presses on the veins.

Clinicians often experience great difficulty in removing accumulations of fluid in patients who suffer with renal insufficiency. The retention of urea in nephritis is so well known as to require no further comment.

Saline diuretics and drugs of the caffein group are said to be best for use during chronic nephritis.

DOSAGE

The dosage of the digitalis bodies has been discussed in the article dealing with cardiac drugs.

The dosage of caffein and theobromin for inducing diuresis is commonly limited by its actions on the heart and central nervous system, especially in the case of caffein by its tendency to produce wakefulness, and in the case of theobromin by its action on the heart.

The diuretic dose of caffein is usually given as 0.3 gm. (5 grains) but the drug is commonly given up to the limitations imposed by its side actions. It may be repeated about three times a day. Theobromin is given in about the same amounts, but owing to the more rapid action it may be repeated about four times a day.[2]

The volatile oils are seldom administered alone for their diuretic action, but they are sometimes used in the form of infusions, or other preparations of drugs which contain them.

The dose of potassium acetate is about 2 gm. (30 grains). It is commonly used when it is desired to increase the urine and render it alkaline, and the dose may be repeated every two or three hours until the desired object is attained. It is converted into the carbonate, in which form it is excreted largely.

Calomel is given in doses of from 0.1 to 0.2 gm. (from 1½ to 3 grains) several times daily when it is desired to cause diuresis. Since such doses cause diarrhea in most cases, it is often advised that opium be administered with it in sufficient amounts to prevent active purgation. This interferes with the evacuation of large amounts of water, and does cause diuresis in the manner described, but it is probably better to use smaller doses of calomel, and avoid the necessity of using opium. In many cases the removal of even a small amount of water by purgation will suffice to inaugurate an increased secretion of urine, and with a mild action one avoids the depression which is such an objectionable feature of violent calomel purgation. Small doses of calomel often cause purging with little more discomfort than accompanies a normal movement. The severe depression which accompanies calomel purgation is probably due in a large measure to the determination of an excessive amount of blood to the splanchnic region as the result of active intestinal secretion. Moderate action is not accompanied by this excessive activity of the intestinal glands and the resulting depression.

It seems probable that the combined use of digitalis, calomel and caffein or theobromin would be better than calomel with opium, except when the opium is needed for its other actions.*

(To be continued)

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[2] It seems probable that theobromin may be administered conveniently in the form of cocoa in sufficient amounts in many cases. It is often objected that this requires the administration of too much water, but every patient must have some fluid every day, and since cocoa should be made with *milk only*—*not* with water—there is no apparent reason why the cocoa should not be administered with the milk which forms an important part of the diet as a rule in such cases. The better class of powdered cocoas contain about 1 per cent. of theobromin, hence 10 gm. of powdered cocoa, sufficient for one cup, would contain 0.1 gm. (1½ grains) of theobromin. If desired, the theobromin administered in this way may be supplemented by theobromin or the theobromin and sodium acetate or salicylate. An advantage in the use of cocoa in this way is the reduction of the amount of sodium salicylate or acetate which it presents, and the lessened gastric disturbance.

* Owing to lack of space the materia medica of this group is omitted from The Journal. It will be included when this series is published in book form.

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SATURDAY, MAY 22, 1915

SENSATIONS OF GASTRIC ORIGIN

The classification and analysis of our sensations meet serious obstacles when we attempt to unravel the nature of those feelings through which a knowledge of the condition of the body and perhaps of ourselves as distinct from the external world is acquired. There is a group of organic sensations of movement and position, of pain, fatigue and less definite sensations of the visceral organs, which furnish subjective information regarding ourselves as things apart from the objects which surround us or the changes which excite our exterior senses. Important as the psychologic significance of these sensations projected into the interior of the body is in the way of entering into and qualifying our judgments, the subject does not lend itself readily to popular discussion. Aside from vague suggestions of ill-defined localities which are furnished by the pain sense, the sensory data derived from the interior of the body are exceedingly meager at best.

The inaccuracy of localization which pertains to the sensations associated with the visceral organs is in part complicated by the reference of pain arising from them to other parts of the body, notably to certain areas of the skin. Experience teaches that the stomach is not sensitive to touch; otherwise we should all be more familiar with this organ than we are. There are times, however, when sensibility of some sort is present. What is the solution of this seeming paradox?

Professor Carlson[1] of the University of Chicago concurs, with other investigators who have examined cases of fistula in the human stomach, in the conclusion that stimulation of the normal gastric mucosa does not produce tactile sensation. Gently touching or striking the mucosa with blunt objects produces no sensation. The indefinable feeling noted when more vigorous manipulation is employed is not like touch or pain or hunger, and is presumably associated with some outlying visceral part. Carlson believes that the sensation of pain cannot be produced from the normal gastric mucosa by any stimulation confined to the mucosa itself. Pinpricks or incisions of the normal mucosa do not seem to affect consciousness in any way. It does not follow that pain may not be caused by the stimulation of the hypersensitive mucosa. It is suggested that the gastric pain accompanying excessive inflation, gastric ulcers and chronic obstruction is due to the mechanical stimulation of hypersensitive nerves or nerve endings in the muscularis or submucosa by excessive distention or contraction. The nature of gastric hunger pains has already been discussed in THE JOURNAL.[2]

With respect to the recognition of temperature changes, the conditions in the stomach seem to be somewhat different. The evidence suggests that the mucosa is endowed with heat and cold nerve endings. The sensibility appears to be of the type which Head has termed protopathic, that is, of somewhat indefinite and "affective" character rather than "epicritic" and accurately localized. These fibers are undoubtedly more abundant and readily stimulated in the throat and esophagus than in the stomach; but the temperature sensations initiated by touching the gastric mucosa directly through a fistula with hot or cold solids cannot be referred to the esophageal membrane or to the skin of the abdomen. It is an interesting fact that heat and cold sensations are not confused, and that according to several investigators the cold sensation seems to be more distinct and better localized than the heat sensation.

The sensation of fulness does not originate in the mucosa of the stomach.[3] Its main source is the tension exerted from within on the circular muscular fibers of the stomach. A certain amount of tonus relaxation of the organ must be present before tension or pressure of the walls of the stomach produces the sensation of fulness.

Carlson has maintained for some time that hunger and appetite are qualitatively different sensations.[2] The sensory apparatus for hunger is distributed in the stomach wall and is stimulated by a certain type of contractions of the empty stomach. When foods or liquids are taken into the mouth and swallowed in the normal way, their main influence on appetite is via nerve endings in the mouth. In fact, the latter is so prominent that only by excluding it are we able clearly to distinguish the gastric factor. The memory factor in appetite is therefore preeminently gustatory and olfactory. Nevertheless the recent observations[1] on a subject with a gastric fistula indicate that chemical, and possibly mechanical, stimulation of nerve endings in the normal gastric mucosa gives rise to a sensation identical with appetite. This is the basis for the conclusion that the mucosa is endowed with a "protopathic" appetite sense. In weighing the uncertainties of such statements it must be remembered that they represent the results of subjective analysis, a debatable mode of investigation enforced by the necessities of the problem.

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[1] Carlson, A. J., and Braafladt, L. H.: Contributions to the Physiology of the Stomach, xviii, On the Sensibility of the Gastric Mucosa, Am. Jour. Physiol., 1915, xxxvi, 153.

[2] The Call of the Empty Stomach, editorial, THE JOURNAL A. M. A., Oct. 4, 1913, p. 1300; The Voracity of Certain Diabetics, Feb. 21, 1914, p. 621; New Facts About Hunger, July 11, 1914, p. 169; Stomach Bitters, Jan. 2, 1915, p. 58; Water as a Gastric Stimulant, p. 59.

[3] Hertz: The Sensibility of the Alimentary Canal, London, 1911.

WAR EXPERIENCES WITH INFECTED WOUNDS

The treatment of the bacterial infections of projectile wounds, founded on the experiences in the present war, forms the subject of an interesting memorandum[1] bearing the signatures of Colonels F. F. Burghard, Sir W. B. Leishman, F.R.S., Sir B. Moynihan and Sir A. E. Wright, F.R.S. The memorandum is issued for the guidance of members of the English army medical service in the treatment of wounds during the war, and it is expected, as soon as certain researches are completed, to follow it with additional memoranda on the employment of antiseptics and vaccines.

Among the most interesting observations made with regard to wounds, and particularly deep, penetrating wounds as made by shells in this war, is the notable difference between the reaction of sailors and soldiers. Sailors with the most severe type of wound, ragged, irregular, with uneven surface produced by herniated muscle and retracted severed fibers, usually have recovered promptly.[2] Soldiers suffering from even slight wounds have often had them contaminated with bacilli from the soil, particularly the anaerobes. This is a trench war; many of the trenches are dug through cultivated fields, and soldiers often cannot be removed from them for many hours after being wounded; contamination becomes almost inevitable. Large penetrating wounds made by shells under such circumstances have been particularly slow to heal, and septic complications have been frequent, severe and only too often fatal.

It was said at first that the sailors recovered promptly and satisfactorily in spite of the fact that many of them were subjected to immersion in cold sea water for from half an hour to an hour or more. Notwithstanding the shock thus inflicted, the reaction both in constitution and wound healing was excellent. Now the commission recommends the bathing of wounds with hypertonic salt solutions like sea water. Probably the exposure to sea water was actually remedial in its effects because the flow of lymph and serum induced in the wounded tissues actually obviated septic sequelae. The practical directions are:

> "For ordinary use, the best application will be a 5 per cent. solution of common salt combined with 0.5 per cent. citrate of soda to render the lymph incoagulable. Where citrate of soda, or a similar decalcifiant is not available, a simple 5 per cent. solution of salt will serve. Sea water, this being equivalent to a 2.5 per cent. solution of salt, may also be employed. In dealing with dry and infiltrated wound surfaces, stronger solutions of salt (up to 10 per cent.) will be found to resolve the induration and to clean up the wound surfaces much more quickly than weaker solutions."

Where the wounds are deep and open, the simplest procedure is to pour in hypertonic salt solution and then plug lightly with gauze. Superficial wounds may be dealt with by laying on gauze thoroughly soaked in the solution. As these measures produce a very free flow of fluids from the wound, care must be taken to keep the bed and clothing from becoming perilously or even uncomfortably damp; therefore the limb should be wrapped in water-proof material. The memorandum adds that an application of petrolatum will prevent irritation of the skin and stinging on freshly cut skin surfaces. It is interesting to realize that this suggested method of treatment is actually a reversion to the idea of "drawing something out" of the system which used to be so familiar in connection with the use of poultices in the older generations, though, of course, poultices were usually applied to unbroken surfaces. The memorandum speaks of the "drawing agent" having done its work "as soon as it has checked the spreading invasion of the tissues, and cleaned up the dry and indurated wound surface and this last has clothed itself in bright coral red granulations. The hypertonic salt solution may then be replaced by some simple dressing."

Antiseptics have lost their prestige, but are now recommended because they help in the destruction of bacteria of various kinds in tissue débris which might cause infective processes in others or contaminate the hospital generally. If this precaution were omitted, infective microbes would inevitably be carried from one wound to another, and by such "passaging" there would almost surely "be bred out in the hospitals very virulent strains of microbes which would as in pre-Listerian days induce all manner of fatal septic infection. . . . Up to the present, experiment has not furnished anything in confirmation of the idea that the introduction of antiseptics into wounds would be likely to contribute to the arrest of suppuration." In a word then, while antiseptics used to be employed for the sake of the individual to whom they were applied, with the belief that they facilitated wound-healing, they are now recommended only because of the protection that they afford to others.

In conclusion, the memorandum suggests that when wounds are heavily infected, the ideal method of treatment, if only it were always practicable, would be immersion in a bath or continuous irrigation with some aseptic or mildly antiseptic fluid. When this continuous bath or, according to the conditions of the cases and the circumstances of the treatment, "the lymph lavage" induced by hypertonic salt solution has brought the infection under control, what remains of the infectious process may very often be extinguished by freely exposing the open wound to the air. In other words, two of Nature's simplest and most abundant materials, sea water and air, have come back as adjuvants in surgery. There has long been a tradition among sailors that washing wounds with sea water did them good, and on the farm, salt solution has often been employed in the treatment of wounds both of animals and of men. The feeling usually was that this old-time tradition probably had little basis of value in it, though now the experience of a great war would seem to indicate that the acute clinical observation of the older generations has enabled them to realize the value of applications of salt solution. As the true reason was misunderstood, their use gradually went out, or became limited only to popular medicine. As a reversion to older ideas in many particulars, this memorandum is significant in the history of medicine.

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[1] Burghard, F. F.: Leishman, W. B.; Moynihan, B., and Wright, A. E.: Memorandum on the Treatment of the Bacterial Infections of Projectile Wounds, Lancet, London, April 24, 1915, p. 873.

[2] War Surgery, editorial, The Journal A. M. A., March 13, 1915, p. 912; The Bacteriology of the Wounds in the War, Jan. 30, 1915, p. 438.

INDOOR HUMIDITY

There is a widespread and growing belief in this country that the problems of ventilation are in need of exhaustive investigation. Some of the aspects of this subject, and particularly their bearing on hospital ventilation, have been discussed in detail in a series of papers in The Journal.[1] Physiologic research has brought about a new attitude in regard to what constitutes "foul air." The chemical composition of the atmosphere, its relative content of oxygen, carbon dioxid and other gaseous ingredients, are now of less concern to the hygienist than are certain other factors formerly looked on as somewhat incidental. The movement of the air, and its temperature and humidity now likewise call for careful attention and analysis. To a certain degree these features are interrelated and may properly be considered together.

Inasmuch as the temperature of the body is regulated by the loss of heat through evaporation of water from the lungs and skin, obviously the humidity of the environment of the body is of no small importance. The term "relative humidity" is used to express the ratio of the moisture actually present in a given space to the maximum amount which this volume can contain at the same temperature. At a temperature of 15 C. (59 F.) and with a relative humidity of 75 per cent. — a high figure — Pettenkofer and Voit estimated the loss of water by the lungs at 286 grams, and from the skin at from 500 to 1,700 grams daily. This will give some idea of the magnitude of the effects here concerned. If the relative humidity be increased, there will be a hindrance to the escape of water from the body; and when this condition of high relative humidity is combined with a high temperature of the air, the heat is far more oppressive than when the air is dry and allows free evaporation. Conversely, a cold, moist atmosphere may also be distressing.

The complexity of the question of humidity is well exemplified by the statement that very humid air, on the one hand, may prevent the comfortable escape of body heat by evaporation, whereas very dry air, especially when warm, is said to affect the mucous membranes injuriously. The foremost need at the present time is a mass of facts — something definite and tangible to guide the ventilating engineer. It is commonly stated that the air in our houses is too dry in winter, especially in cold weather. An American physicist[2] has called attention to the fact that most of the current household devices for humidifying the air of houses heated by the hot air furnace are entirely inadequate for this purpose. According to his calculations, a house containing 17,000 cubic feet of space would require, for a relative humidity of 40 per cent. at 70 F., with air already containing 20 per cent. humidity and changed once an hour, about 15 gallons of water a day. Rarely will the familiar water pans of American furnaces evaporate more than 2 or 3 gallons daily — hardly enough to raise the humidity 5 per cent.

Professor Ingersoll[2] of the University of Wisconsin has rarely found a humidity of less than 20 per cent. in buildings examined by him. Even allowing for moisture furnished by the exhalations of occupants and for such occasional sources as cooking operations, he maintains that many gallons of water must be evaporated daily in a moderate-sized house in cold weather to secure even 40 per cent. humidity. The latter figure is less than that given by medical writers as an ideal value. The relative humidity of outside air not infrequently passes the 80 per cent. level. Ingersoll found that when a humidity of 50 per cent. was produced by special devices, the condensation accompanying this value in cold weather proved unbearable. He concludes that for a temperature of about 70 F., which our heated rooms approach in winter, the ideal indoor humidity for winter in a climate such as that of Wisconsin is from 40 to 45 per cent. Seventy per cent. would mean the atmosphere of a steam laundry. According to Ingersoll, any recommendations of this value are either based on pure theory or else are founded on measurements with older forms of unreliable and inaccurate apparatus. Precisely wherein the hygienic advantages of a relative humidity of even 40 per cent. lie remains to be explained.

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[1] Bass, Frederic: Tests of Ventilating Plants, The Journal A. M. A., Nov. 7, 1914, p. 1620. Winslow, C. E. A.: The Importance of Studying the Actual Condition of Hospital Air, Nov. 7, 1914, p. 1621. Miller, J. A.: Hospital Ventilation from the Point of View of the Clinician, Nov. 7, 1914, p. 1623. Lee, F. S.: Laboratory Experiments With Air, Nov. 7, 1914, p. 1625. Ohmes, A. K.: Hospital Ventilation from the Ventilating Engineer's Point of View, Nov. 7, 1914, p. 1628. Ventilation, editorial, Nov. 7, 1914, p. 1672; Temperature and Humidity in Hospitals, Oct. 25, 1913, p. 1541; The Ventilation Problem, Nov. 22, 1913, p. 1902.

[2] Ingersoll, L. R.: Indoor Humidity, Jour. Home Economics, April, 1915, vii, 193.

THE "LAW OF ANTICIPATION"

Numerous statistical studies of the inheritance factor indicate that insanity is gradually increasing. This increase has been attributed not alone to the more intense strain of modern life, but also to alleviation or temporary cure of mental derangements by appropriate treatment, thereby giving the mentally unfit a greater chance for procreation.

In contrast to these notions stands Mott's[1] "law of anticipation," derived from the study of a series of 217 pairs of father and offspring and 291 pairs of mother and offspring in which two or more members of the same family had been inmates of London county asylums. He found insanity appearing in 2 per cent. of the fathers and 4 per cent. of the mothers before 25 years of age, whereas among the offspring, 44 per cent. of the cases occurred before 25 years of age. The average age of onset of insanity was 50 years in the parents and 26 years in the offspring. Thus there was an antedating or anticipation of twenty-four years, the disease occurring, on the average, twenty-four years earlier in the children than in the parents. This so-called "law of anticipation" implies that when children of the insane become insane, they do so at a much earlier age than did their parents. They are also said to suffer from a more intense form of the disease. Mott lays great stress on this as Nature's way of ending or mending an unfit stock, and believes that there is a diminishing risk of the child of an insane parent becoming insane after he has passed 25 years. He even goes so far as to advise offspring of insane parents to marry if at 25 years of age they are mentally sound.

If the "law of anticipation" is a fact, it is evident that much of the present comment on the increase of insanity is unfounded and that many of the problems now confronting eugenists will, through Nature's provision, care for themselves. Since Mott's findings are contrary to conclusions drawn by many other statisticians, Heron[2] has undertaken a careful study of the method of compiling and the interpretation of these data.

He found that cases of insanity occurring before 20 years of age invariably appeared in the tables, whereas, many instances of insanity occurring in the offspring at 40 to 60 years of age escaped the records. Thus a false antedating results. No allowance was made for the mentally normal, at the time the tables were compiled, who in later years became insane. By directly comparing parent and child, one group, the parents, has been limited to over 20 years of age, making a marked error in favor of anticipation. Heron studied this manner of anticipation by means of the family histories of some of the ruling houses of the eighteenth century. In these records, every member of the entire family is accounted for. Among the fathers, none died under 30 years, while 87 per cent. of their children died under that age. The average death age of the fathers was 62, of the children 10, an anticipation of fifty-two years. None of the 294 fathers died before 20, but 106, or 36.1 per cent., of the 294 first-born children died before that age. This manner of selection, similar to Mott's, limits the age of the parental group to over 20 years, while more than one third of the offspring die under 20. This fallacy may be removed by contrasting the death rate of the fathers with that of the first son to marry and have a child. In 213 such instances, scarcely a year separates the age at death of father and son. Thus by removing artificial selection, all anticipation disappears. Further mathematical evidence tends to disprove the possibility of a "law of anticipation," and one must believe that such a law is not based on fact.

Mott's advice concerning marriage of offspring of insane parents has been criticized as unsound. Of the 500 offspring studied by him, 44 per cent. became insane before reaching 25 years of age. If 44 per cent. become insane before 25, 56 per cent. must become insane after this age, and therefore marriage after 25 is of greater risk than before.

The rise and fall of the "law of anticipation" serves as an illustration of fallacies which may occur in statistical studies. In the future such mistakes will happen less frequently since undoubtedly, twenty years hence, statistics will be a science unto itself and dealt with only by trained men.

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[1] Mott: Brit. Med. Jour., May 11, 1912, p. 1060.

[2] Heron: Biometrika, 1915, x, 356.

PASTEURIZATION OF MILK AND THE COLON BACILLUS

Although the pasteurization of milk has become a familiar process in various parts of the United States and is highly lauded in many quarters as an admirable safeguard of the health of consumers, there still is considerable misconception regarding the results actually accomplished. The real function of pasteurization, that is, its actual effect on the milk involved, is not understood so adequately or accurately as it ought to be. Those least conversant with the underlying facts often believe that the procedure destroys all the micro-organisms present in raw milk; the results attained are confused with what is attempted in complete sterilization of milk by more vigorous methods. The more rational assumption, on which the current practices in general are based, is that pasteurization of milk, by heating it to a temperature of from 60 to 63 C. (140 to 145.4 F.) and holding it at this temperature for from twenty to thirty minutes, serves to destroy any bacteria of diseases regarded as transmissible by milk. The use of higher temperatures for shorter periods is now more generally avoided because it is believed that undesirable chemical changes are more likely to take place in milk treated in this way, and more especially because higher heating destroys an undue proportion of lactic acid bacteria, while the spores of certain micro-organisms which decompose the proteins of milk are not destroyed. As a result, the milk may subsequently become unwholesome from putrefactive change before it becomes sour as a result of the acid-forming bacteria.

Realizing, then, that pasteurization is never expected to destroy all bacteria in milk, one is prompted to ask what margin of safety against survival of undesirable living organisms remains at the temperatures and during the periods currently advised for heating the milk. It is said that the presence of colon bacilli in pasteurized milk is generally interpreted as meaning either that the milk was not properly heated or that it was reinfected after pasteurization by careless handling. This interpretation is based on the low thermal death point of cultures of *Bacillus coli.* In the laboratories of the Dairy Division of the Bureau of Animal Industry at Washington, Ayers and Johnson[1] have ascertained the thermal death point of many cultures of colon bacilli isolated from numerous typical sources of contamination, such as the excrement of man and cattle, flies, milk, cream and cheese. The duration of the heating was fixed at thirty minutes for all the trials. At 60 C. (140 F.), the lowest pasteurizing temperature, ninety-five out of 174 cultures examined, or 54.59 per cent., survived; at 62.8 C. (145 F.), the usual temperature for pasteurizing, twelve, or 6.89 per cent., survived. One culture was not destroyed at 65.6 C. (150 F.) on the first heating, but in repeated experiments it was always destroyed. There is a marked difference in the effect of heating at 60 C. and at 62.8 C. Although there is only a difference of 2.8 degrees C., or 5 degrees F., 87.3 per cent. of the cultures which survived at 60 C. were destroyed at 62.8 C.

It is important from a practical standpoint to learn that 62.8 C. maintained for half an hour is a critical temperature for most colon bacilli. It seems desirable, however, to emphasize the fact that though there is a low "majority thermal death point," a few cells often may survive this. Under the circumstances pointed out, the thermometer needs careful watching, and the pasteurization process calls for intelligent execution in order to produce dependable results. The presence of a large number of colon bacilli immediately after the heating process may indicate improper treatment of the milk.

The government bacteriologists have reached the conclusion that if milk is pasteurized at a temperature of 65.6 C. (150 F.) or above for thirty minutes, they would not expect, from their results, that any colon bacilli would survive. Consequently, under such conditions the colon test for the efficiency of pasteurization may be of value. It must be remembered, however, that a study of more cultures may reveal strains of colon bacilli that are able to survive this and even higher temperatures.

THE COAGULATION OF THE BLOOD AFTER HEMORRHAGE

Variations in the clotting power of the blood are encountered in diverse manifestations of practical medicine. Not infrequently they are occasion for uncertainty and annoyance, particularly when conditions arise in which an inhibition of coagulation accompanies some hemorrhagic diathesis. Until the physiologic factors concerned in the coagulation of the blood are more clearly understood, it is almost unwarranted to expect any real progress in the management of the often serious situations created by certain types of uncontrollable hemorrhage. Empiric experience has served as a guide in the past, and the remedial procedures instituted have as a rule been local and palliative rather than fundamental and permanent in character.

The coagulation of the blood has formed the subject of intensive study on the part of physiologists and biochemists for decades. Even the most recent literature in this field abounds in many contradictory statements, irreconcilable observations and obscure points. It calls for no small degree of scientific courage at the present moment to venture an attempt at a comprehensive summary or a tenable theory. The variables are still too numerous and complex to fit into any complete hypothesis yet offered. So long as the experts cannot agree, the physician of today may be excused if he fails to understand the obscure language in which the coagulation phenomena are currently described. The growth of scientific nomenclature is not always a guarantee of progress in the elucidation of the problems of science.

In spite of the confusion, there is an accord on certain fundamental features. Two factors, which we may call fibrinogen and thrombin, unquestionably play a part in the coagulation of the blood. There is a growing objection to the older theories which regard this process as essentially enzymatic in nature. Thrombin, which is somehow formed from a precursor, prothrombin, reacts with fibrinogen to form the fibrin of the clot. According to Howell, the non-coagulability of circulating blood depends on the fact that an inhibitory substance, antithrombin, prevents the activation of the prothrombin into thrombin.

From a practical standpoint in medicine it is of no small moment to learn clearly what substances actually act as accelerators or inhibitors of coagulation. One need only recall the predicament offered by the slow clotting of the blood in hemophilia to gain some appreciation of what might be accomplished if the factors were thoroughly understood. Little by little, however, useful progress is being made. An illustration of this is afforded by a recent study of the effect of rapid progressive hemorrhage on the factors of coagulation.[1] It has long been known that the coagulation time of the blood is decreased under the condition noted.[2] This is, indeed, an advantageous adjustment for the organism. In a search for quantitative alterations in the different factors of coagulation corresponding to the decrease in coagulation time after hemorrhage,[1] it was discovered that the antithrombin decreases in amount and remains practically constant when the coagulation time is unchanged. Under conditions of diminished coagulability of the blood an increase in its antithrombin has been demonstrated; but this newer research is regarded as the first instance in which there has been reported a positive decrease in the antithrombin content of the blood.

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[1] Ayers, S. H., and Johnson, Jr., W. T.: Ability of Colon Bacilli to Survive Pasteurization, Jour. Agric. Research, 1915, iii, 401.

Current Comment

A RARE ZOOPARASITE IN MAN

The rarities and novelties of medical experience almost always embody some features of interest quite aside from the immediate practical questions which they involve. When cases of tropical disease are discovered in the temperate zones, the problem of their origin and distribution is inevitably suggested. With the means of communication between the Orient and America improving every year, it is not surprising to learn that disease-producing agencies heretofore unknown among us should follow the easy paths of commerce. These reflections are awakened by the first reported American case of infection with the larval cestode, *Sparganum mansoni.* Somatic teniasis, due to infection with the larval stage of tapeworms, is not a frequently observed condition. Among the different types, hydatid disease, due to infection with the larval *Echinococcus,* and cysticercosis associated with the presence of the larvae of *Taenia* are known far better than the infection with the bothriocephalid larvae of the species *Sparganum mansoni.* Although this larval tapeworm was discovered in 1882, all of the cases of human infection with the zooparasite hitherto reported have concerned persons either living in the Far East (China and Japan) or those who have presumably traveled there. The parasite lodges in various tissues of the body, and is said to show a tendency to wander from one locality to another. The host is not known, so that preventive measures cannot intelligently be followed to avoid infection. When the parasite presents itself to view, as is sometimes the case in the urinary passages, it can usually be removed mechanically. In other cases, when the worm locates in superficial swellings of muscle or connective tissue, surgical treatment must be employed. It was the latter procedure which led to the discovery of the larval *Sparganum* in a breast tumor by Dr. Moore[1] of Houston, Texas. The fact that the patient had never been out of the borders of the United States at the time when the worm, measuring 21.5 cm., was removed from a tissue mass near the nipple, presents a new feature in respect to the geographic distribution of this species of parasite.

THE POISONOUS PRINCIPLE IN WATER HEMLOCK

Among the poisonous plants of which the toxicologic agent has not heretofore been classified with any well-defined chemical group, the water hemlock has furnished many victims. Nine or ten species of *Cicuta,* belonging to the Umbelliferae, or parsley family, have been recorded as occurring in this country. They are, of course, to be clearly distinguished from the spotted hemlock (*Conium maculatum*) of Socrates fame, which is a different genus. The harmful results from eating the roots of the water hemlock have not been confined to domestic animals, among which the mortality has at times been reported to be very high. Two decades ago it was not uncommon to read of severe intoxications in man usually owing, it is said, to a confusion of parts of the plant with parsnips. One author has collected thirty-one cases of poisoning by *Cicuta,* of which number fourteen were fatal. Suicides among Indians, caused by eating the roots of the plant, have also lately been reported. The European pharmacologist Boehm prepared a crude product from the water hemlock and gave the name "cicutoxin" to it. Tested toxicologically, this substance provokes symptoms similar to those which have been described in the poisoning of man by eating the roots. There usually are tremors followed by tonic and clonic spasms. Paresis of the extremities appears, and finally there may be full paralysis and death. It has been supposed that the poison acts specially on the medulla, while the brain and spinal cord are only secondarily affected. At the Nevada Agricultural Experiment Station in Reno, Jacobson[2] has reinvestigated the chemistry of these potent plants. According to him at least three distinct species of water hemlock, growing in the United States along the banks of streams and in marshy ground, contain the same poisonous principle, which is located primarily in the rootstalk of the plant. Cicutoxin is an unstable resinlike substance of the formula $C_{10}H_{20}O_3$, and is a complex derivative of pyrone. It decomposes and polymerizes readily, especially at temperatures above 50 C. (122 F.). A reliable chemical test for its presence has been found. The lethal dose of this "spasmotoxin," which produces symptoms that include a paroxysmal and a paralytic stage, cannot yet be given with any approach to accuracy. The order of magnitude may be indicated by the fact that about 50 milligrams per kilogram of body weight will kill small animals. Death usually ensues from asphyxiation and exhaustion. No antidote is at present known. The allaying of the convulsive symptoms by means of a narcotic is at best a palliative procedure.

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[1] Drinker, Katherine R., and Drinker, C. K.: Factors Affecting the Coagulation Time of Blood, VI, The Effect of Rapid Progressive Hemorrhage on the Factors of Coagulation, Am. Jour. Physiol., 1915, xxxvi, 305.

[2] Gray, H., and Lunt, H. K.: Am. Jour. Physiol., 1914, xxxiv, 332.

[1] Moore, J. T.: Sparganum Mansoni, First Reported American Case, Am. Jour. Trop. Dis., 1915, ii, 518.

[2] Jacobson, C. A.: Cicutoxin: The Poisonous Principle in Water Hemlock (Cicuta), Jour. Am. Chem. Soc., 1915, xxxvii, 916.

AN IMPORTANT RULING ON THE HARRISON LAW

Since the Harrison law went into force, frequent inquiries have been made as to the quantity of drugs which a physician was justified in prescribing or dispensing. Obviously, the quantity necessary in chronic cases or in the treatment of drug habitués differs materially from the quantity permissible in an ordinary case. The law makes no provision on this point, except to provide in general terms that, whether prescribing or dispensing, all acts coming under the scope of the law must be in good faith and not to evade the purposes of the act. It has been evident that some supplementary ruling on this point would be necessary. The Commissioner of Internal Revenue has just issued a ruling, dated May 11, which provides that

> "where a physician, dentist, or veterinarian prescribes any of the aforesaid drugs (those included in the provisions of the Harrison law) in a quantity more than is apparently necessary to meet the immediate needs of a patient in the ordinary case, or where it is for the treatment of an addict or habitué to effect a cure, or for a patient suffering from an incurable or chronic disease, such physician, dentist, or veterinary surgeon should indicate on the prescription the purpose for which the unusual quantity of the drug so prescribed is to be used. In cases of treatment of addicts, these prescriptions should show the good faith of the physician in the legitimate practice of his profession by a decreasing dosage or reduction of the quantity prescribed from time to time, while on the other hand in cases of chronic or incurable diseases, such prescriptions might show an ascending dosage or increased quantity. Registered dealers filling such prescriptions should assure themselves that the drugs are prescribed in good faith for the purpose indicated thereon, and if there is reason to suspect that the prescriptions are written for the purpose of evading the intentions of the law, such dealers should refuse to fill same."

Under this ruling, physicians must place on their prescriptions, whenever, for any reason, an unusual quantity of opium or cocain is prescribed, a statement of the reasons for such an order. If the physician and patient are acting in good faith, it is difficult to see any objection to such a provision. There will, of course, be some sensitiveness on the part of secret drug addicts to having their weaknesses made a matter of record, but this can hardly be avoided in any plan which will separate the genuine from the spurious demand for these drugs. The ruling of the Commissioner will clear up a point on which there has been much discussion. As The Journal has constantly stated, the object of the Harrison law is to secure publicity in the use of habit forming drugs and to effect the prosecution and punishment of all persons using them for illegitimate purposes. Compliance with this ruling will relieve physicians of responsibility and will make the prescribing or dispensing of unusual amounts of these drugs a matter of record.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Home for Incurables Opened.—A new home for incurables at the corner of Geary and Wood streets, San Francisco, was formally opened April 26. The building will accommodate thirty-six patients.

Vaccination Foes Defeated.—The senate, May 5, refused passage of the Gelder bill, which releases schoolchildren and students from compulsory vaccination. The bill was defeated by a vote of 23 to 12.

Hospital Dedicated.—On May 1 the new San Francisco City and County Hospital group of buildings on Protrero Avenue, erected at a cost of $2,000,000, was dedicated with appropriate ceremonies. The president of the board of works formally delivered the completed buildings to the mayor, who accepted the group in the name of the citizens of San Francisco. There are 350 beds at present ready for occupancy.

Physician's Tax Annulled.—The section of the local license ordinance of Turlock, which imposed a tax of $10 a day on transient physicians practicing in that city, was declared unconstitutional by Superior Judge L. W. Fulkerch, April 28, when he granted a petition for the release of Dr. J. H. Berry, on a writ of habeas corpus. The proceeding held that the section was "discriminatory, prohibitive and unreasonable."

Personal.—Dr. Samuel H. Horwitz has been appointed instructor in research medicine in the Hooper Foundation for Medical Research of the University of California, San Francisco.——Dr. Edouard C. Fabre-Rajotte, San Francisco, has been appointed eye, ear, nose and throat specialist to the French Hospital in that city.——Dr. Jacob H. Parsegan, San Francisco, has returned after a trip to Marsovan, Turkey, and Asia.——Dr. William A. Brooke, Halfmoon Bay, has been appointed coroner and public administrator of San Mateo County.

Hospital Notes.—The cornerstone of the Methodist Hospital of Southern California, Los Angeles, was laid May 3. The building is to be of reenforced concrete, six stories and basement in height, will accommodate 120 patients and will cost when completed, $210,000.——The Bellevue Hospital Corporation has been organized at Los Angeles, to erect a hospital to be known as the Bellevue Hospital, to contain about sixty rooms and to cost about $60,000.——The French Hospital Association has revived the plan to erect a modern hospital building at the corner of College and Castelar streets, Los Angeles. The building will cover a ground space of 150 by 40 feet, will be two stories in height and will contain two wards and eighteen private rooms, beside the necessary surgical rooms, kitchen and administrative offices, and the building is estimated to cost about $40,000.

FLORIDA

Florida has a Single Board.—A bill providing for a single board of medical examiners, in place of the three separate and independent boards, has passed the Florida legislature. The law also provides for a reregistration of all physicians and osteopaths in the state.

GEORGIA

War on Hookworm.—The board of commissioners of Randolph County has made a special appropriation of $150,000, to be spent in fighting hookworm in that county.

Drainage Expert to Fight Typhus.—Mr. George Hazelhurst, formerly of Atlanta, an expert engineer in drainage work of Savannah, has accepted a position under the Rockefeller Foundation for work against typhus fever in Serbia.

Personal.—Dr. Walpole C. Brewer, Atlanta, has started for New York for service with the British Red Cross.——Dr. G. H. Lowden, assistant superintendent, has succeeded Dr. Louis Hollander as superintendent of the Battle Hill Tuberculosis Sanatorium.——Dr. J. L. Adams was shot and seriously wounded near Donaldsonville, April 13.

Ware County in Advance.—A new epoch in public health work has begun with the action of the commissioners of Ware County in creating the office of county health officer. A health officer for each county in Georgia was authorized by the Ellis bill in the 1914 legislature, the authorization being subject to approval by the board of commissioners.

Health Officers Meet.—The Georgia Association of County and Municipal Health Officers met in Macon, April 20, and elected Dr. Howard J. Williams, Macon, president, and Dr. Peter J. Bahnsen, state veterinarian, secretary. A committee was appointed to memorialize the Georgia legislature to pass a law at its next session, requiring that each town and city in the state record vital statistics.

Sanatorium Wants New Buildings.—On the ground that the constantly increasing number of patients at the Georgia State Sanatorium, Milledgeville, renders imperative the provision of additional facilities, the trustees of that institution have recommended to the next general assembly an appropriation of $500,000, with which to erect and equip new buildings. The buildings for which there is most urgent need are new wards, one for white women and one for negroes, a hospital for the treatment of curable cases and a nurses' home.

State Medical Association Meeting.—The sixty-sixth annual meeting of the Medical Association of Georgia was held in Macon, April 21 to 23, under the presidency of Dr. William B. Hardman, Commerce. Columbus was selected as the next place of meeting and the following officers were elected: president, Dr. William S. Goldsmith, Atlanta; vice-presidents, Drs. Olin H. Weaver, Macon, and George B. Smith, Rome; secretary-treasurer, Dr. William C. Lyle, Augusta, reelected; councilors, tenth district, Dr. James A. Price, Milledgeville; eleventh district, Dr. Lee Howard, Waycross; twelfth district, Dr. Edward F. Coleman, Graymont; delegates to the American Medical Association, Drs. Mallie A. Clarke and Charles C. Harrold, Macon, and alternates, Drs. Wyman W. Pilcher, Warrenton, and Thomas J. McArthur, Cordele. The association adopted resolutions favoring Atlanta as the meeting place for the American Medical Association in 1916.

ILLINOIS

Leper Colony Planned.—The Illinois State Board of Administration has planned to establish a leprosarium in connection with the Alton State Hospital, which is now under construction.

Banquet to Interns.—The attending physicians of St. John's Hospital, Springfield, gave a dinner to the interns of the hospital at the St. Nicholas Hotel, April 29. Dr. Ben B. Griffith was toastmaster.

Municipal Health Officers Should be Physicians.—The Elgin Physicians Club, at its meeting May 3, adopted resolutions petitioning the mayor and commissioners to change the ordinance regarding the health department, so that the health officer must be a qualified physician with laboratory experience.

Personal.—Dr. Henry G. Wildman of the County Tuberculosis Hospital, Oak Forest, has been restored to professional standing by the decree of Assistant County Judge Hoover, dated May 14.——Dr. Walter Stevenson, Quincy, who has been ill with diphtheria, is convalescent and has resumed practice.——Dr. Henry S. Bennett has succeeded Dr. Perry H. Wessel as city physician of Moline.

Epidemic Diseases.—On account of the prevalence of scarlet fever at Mattoon, orders have been issued that no child under 16 may attend moving-picture shows or other public gatherings.——Measles is very generally prevalent in Jacksonville. The epidemic is mild in its type.——The health officer of Rock Island reports that during the month of April, 154 cases of measles and 20 cases of smallpox were reported in the city.——Schools at Ashton have been closed and public meetings interdicted on account of an epidemic of smallpox.——Smallpox of a mild type is reported from Rochelle.——During April, 109 families in Pana were under quarantine for measles and 13 families on account of smallpox.

Chicago

Child Welfare Taken up by Society.—The May 5 meeting of the Chicago Medical Society was devoted entirely to the subject of child welfare.

Appeal for Funds.—The Chicago Tuberculosis Institute appeals for contributions to make up the deficit of about $2,500 of the $12,000 needed for the budget for the year.

Rosenow Joins Mayo Foundation.—Dr. E. C. Rosenow, a member of the staff of the Memorial Institute for Infectious Diseases, has been appointed one of the directors of the Mayo Foundation and chief of the department of bacteriologic research. He expects to assume his new duties about July 1.

Personal.—Dr. Robert L. I. Smith sailed for Europe, May 8, to work in the Belgian Red Cross with Dr. Dupage, surgeon-general of the Belgian army.——Dr. Anna Dwyer has been appointed a member of the subcommittee of the morals commission on regulation of pool rooms and additional recreation facilities.

Public Laundry Suggested.—The commissioner of health has suggested to the mayor the establishment of a public laundry in connection with the public municipal bath to be built on North Lincoln Street near Augusta. In this plan Chicago is years behind the cities of Europe and especially England, which has had for many years public laundry facilities in connection with the public baths.

KANSAS

New Hospital.—George M. Hoffman, a banker of Rice County, is about to establish a hospital in Little River, to be under the charge of Drs. L. H. Powers and Louie J. Beyer, Little River.

Personal.—Dr. Rollo C. Dugan, Ottawa, superintendent of the Ottawa Hospital, who has been under treatment in Chicago, has returned and resumed practice.——Dr. George H. Hobson, Kansas City, has temporarily succeeded Dr. Chilton W. McLaughlin as health officer of Kansas City.

University Health School.—A free course of instruction for Kansas physicians was given in the Bell Memorial Building, Rosedale, by the University of Kansas and the State Board of Health for two weeks, from April 26 to May 10. Among other speakers, Dr. John S. Fulton, secretary of the Maryland State Board of Health, delivered an address on "Population and Birth"; Surgeon Mark J. White, U. S. P. H. S., St. Louis, discussed "The Pathology and Diagnosis of Bubonic Plague," and Dr. Albert J. Chesley, Minneapolis, director of the division of preventable diseases of the Minnesota State Board of Health considered the "Organization of the State Public Health Service."

Protests Quarantine.—At a meeting of the State Livestock Sanitary Board held in Lincoln, Neb., April 23, an emphatic protest was made by the state of Kansas against the quarantine which Nebraska has enforced against Kansas livestock as a precaution against the foot and mouth disease. During the past six months, Kansas has had six outbreaks of this disease, and it has been necessary to kill 1,217 cattle valued at $72,588.78 and 313 hogs valued at $3,463.20. The owners of the animals were reimbursed in full by the state and national governments. In addition to this, the state has paid $38,025.99 for disinfection and in addition, the necessary veterinary inspection.——Notice has been served on the Texas livestock commission by the state of Kansas that quarantine will be declared against Texas unless that state lifts the ban against Kansas.

State Society Meeting.—The Kansas Medical Society held its forty-ninth annual meeting in the Masonic Temple, Kansas City, Kan., May 5 and 6, under the presidency of Dr. William F. Sawhill, Concordia, and elected the following officers: president, Dr. Oliver D. Walker, Salina; vice-presidents, Drs. Charles W. Jones, Olathe; Benjamin F. Chilcott, Osborne, and John R. Scott, Newton; secretary, Dr. Charles S. Huffman, Columbus (reelected); treasurer, Dr. Lewis H. Munn, Topeka (reelected); councilors, first district, Dr. Charles W. Reynolds, Holton; second district, Dr. Clarence C. Goddard, Leavenworth; seventh district, Dr. Kirk P. Mason, Concordia; eighth district, Dr. Howard N. Moses, Salina, and ninth district, Dr. Chauncey S. Kenney, Norton; delegate to the American Medical Association, Dr. William F. Sawhill, Concordia. Topeka was selected as the next place of meeting.

MARYLAND

Sanitary Engineer Starts for Serbia.—Charles E. Fox of the State Sanitary Engineering Department sailed for Serbia, May 13, to serve as sanitary inspector under the Serbian government. His special duty will be the cleaning up of the typhus plague spots in Serbia.

To Build New Hospital.—Tentative plans looking to the abandonment of its present building and the erection of a modern new hospital in North Baltimore are being considered by the board of trustees of the Union Protestant Infirmary, who are negotiating for a site near Homewood.

Brady Institute Opened.—The formal opening of the James Buchanan Brady Urological Institute, Johns Hopkins Hospital, took place on May 4 with elaborate exercises. There were formal dedicatory exercises early in the afternoon, followed by a reception to Mr. Brady, and in the evening a banquet was held at the Belvedere Hotel. Among those making addresses at the opening were: Dr. Hugh H. Young, Director of the Institute, Dr. William H. Welch and Dr. Edward L. Keyes, of New York.

Physicians Officiate at Church Service.—On May 16, the services at the Emmanuel Protestant Episcopal Church, Baltimore, were participated in by a number of practitioners in attendance on the meeting of the Medical and Chirurgical Faculty of Maryland. Dr. Richard Clarke Cabot, Boston, delivered the sermon, the lessons were read by Drs. Winford H. Smith and Hiram Woods, and the ushers were Drs. Frank Martin, William W. Russell, John M. Hundley and Page Edmunds.

Gift for Johns Hopkins Hospital.—Dr. Winford H. Smith, superintendent of the Johns Hopkins Hospital, has announced a gift of $16,500, to be paid in three yearly instalments, from John D. Rockefeller, Jr., to be used in a special social hygiene department at the hospital, which is to be established next September. The work of the new clinic will be in charge of a committee consisting of Dr. George H. Walker, chairman, Dr. Theodore C. Janeway and Dr. Winford H. Smith. Dr. Albert Keidel, a graduate of the Johns Hopkins Medical School, will be the physician in charge of the new dispensary. He will have four assistants.

Personal.—Dr. David K. Henderson, Baltimore, has resigned as resident physician to the Phipps Psychiatric Clinic, Baltimore, to accept a position as superintendent of the Glasgow Royal Asylum, Scotland.——Dr. Roscoe W. Hall, Baltimore, who is assistant resident physician at the Phipps Clinic, has been appointed by Dr. Winford H. Smith to fill the vacancy caused by the resignation of Dr. Henderson. Dr. Charles B. Thompson has been made first assistant physician and Dr. Augusta Ruby Scott, second resident. Dr. Scott is the first woman to hold this position.——Dr. Walter L. Nicholls, Baltimore, recently underwent operation at the Mercy Hospital.——Dr. John C. Travers, of Baltimore, has been appointed by Health Commissioner Nathan R. Gorter, assistant physician at the Quarantine Hospital to succeed the late Dr. E. G. Altvater.——Dr. John J. Szymanki Schmitt, a young Polish physician, who is at present engaged in special urological work at the Johns Hopkins Hospital under Dr. Hugh H. Young, sailed May 13 from New York for Piraeus, Greece, where he will act in the capacity of sanitary inspector in conjunction with the American Red Cross work.——Dr. Robert H. Crawford, an intern at the Union Protestant Infirmary, has sailed for Europe to engage in Red Cross work. He will land at Rotterdam and go from there to Germany.——Dr. John E. Fisher, Baltimore, was thrown from his buggy in a collision with a motorcycle, May 5, and was painfully injured.

State Medical Faculty Elect.—At the one hundred and seventeenth annual meeting of the Medical and Chirurgical Faculty of Maryland held in Baltimore, April 27 to 29, the following officers were elected: president, Dr. J. Whitridge Williams, Baltimore; vice-presidents, Drs. Lewis C. Carrico, Bryantown; Milton D. Norris, Eldersburg; and Joseph A. Chatard, Baltimore; secretary, Dr. Joseph I. France, Baltimore; treasurer, Dr. William S. Gardner, Baltimore; delegate to the American Medical Association, Dr. G. Lane Taneyhill, Baltimore; alternate, Dr. Herbert Harlan, Baltimore; councilors, Drs. Guy Steele, Cambridge; J. B. Johnson, Frederick; Henry L. Naylor, Pikesville; William J. Todd, Mount Washington, and Edwin B. Claybrook, Cumberland; and Drs. David Streett, Wilmer Brinton, Randolph Winslow and Harvey B. Stone, Baltimore; members of the State Board of Medical Examiners, Drs. John L. Riley, Snow Hill; and Lewis A. Griffith, Upper Marlboro (reelected). A large oil portrait of the late Dr. William Travis Howard, professor of diseases of women in the University of Maryland from 1867 to 1897, and presented to the faculty by Dr. Howard's widow, was unveiled in Osler Hall, Baltimore, April 27. Dr. J. Whitridge Williams made the speech of presentation and the portrait was accepted in behalf of the faculty, by Dr. J. W. Humrichouse. Two amendments to the constitution were adopted, one abolishing the Board of Trustees and the other, increasing the members of the council from eleven to fifteen.

MISSISSIPPI

State Association Meeting.—The Mississippi State Medical Association held its annual meeting in Hattiesburg, May 11 to 13, and elected the following officers: president, Dr. Inman W. Cooper, Newton; vice-presidents, Drs. Walter H. Scudder, Mayersville; William L. Orr, Fulton, and James W. Lucas, Moorhead; councilors, third district, Dr. Charles M. Murry, Ripley; fourth district, Dr. Felix J. Underwood, Nettleton; ninth district, Dr. John C. McNair, Fayette; delegate to the American Medical Association, Dr. Jacob S. Ullman, Natchez; alternate, to be appointed by the president-elect; members of the State Board of Health, Drs. S. Wade Glass, Lyon; Samuel E. Eason, New Albany; Thomas F. Elkin, Tupelo; Thomas H. Seay, Laurel, and John H. Johnson, Brookhaven. It was voted to continue the present arrangement with the *Pan-American Medical and Surgical Journal*.

NEBRASKA

State to Make Sanitary Survey.—A proposal to make an extensive and thorough sanitary survey of the state has been made by the board of secretaries of the State Board of Health on a plan similar to that pursued by Dr. Oscar Dowling in Louisiana.

Personal.—A farewell dinner was given, May 6, to Dr. Anders P. Overgaard by the Dodge County Medical Association at Fremont. Dr. Overgaard expects to reside in Omaha.——Dr. Arthur A. Spoor, Omaha, of the University of Nebraska, has been appointed state bacteriologist of Michigan.

Smallpox.—Seven new cases of smallpox were reported to the health office at Hastings, April 21. This makes a total of 36 cases since the epidemic began. Those who neglect to report cases are to be vigorously prosecuted.——The smallpox situation at Benkelman is now considered to be well under hand. Only one or two new cases developed during the last week.

Hospital News.—An architect has been selected for the state hospital building, to be erected on the campus of the College of Medicine of the University of Nebraska, Omaha. The building with equipment will cost about $50,000. It will be in the same general style of architecture as the college building and will be erected west and a little south of the latter.

NEW YORK

Appropriations for Port Health Office.—Dr. Joseph H. O'Connell, Health Officer of the Port of New York, after a hearing before Governor Whitman, secured the appropriations he had requested.

Payments for Birth and Death Records.—As the result of the enactment of an amendment to the health law which has been recently signed by the governor, physicians will receive a fee of twenty-five cents for each birth and death record filed. This, it is hoped, will do away with the difficulties which have heretofore arisen from non-registration or improper or late registration of births and deaths.

Amend Habit-Forming Drug Law.—The Boylan law has been amended so as to make it unnecessary to use the "Boylan Law" order blanks in order to secure these drugs, provided that the State Commissioner of Health approves in their place such order blanks as may be issued under an Act of Congress. The Commissioner of Health has approved the order blanks required by the federal (Harrison) law and it will therefore in the future be unnecessary to use the Boylan law blanks if the federal order blanks are used.

Contagious Diseases.—It is reported from Poughkeepsie that the scarlet fever situation is well in hand and that no case has developed among the pupils of the public schools beyond the thirteen reported.——The epidemic of measles in Syracuse is said to be on the increase. During April, 528 cases were quarantined and there were 225 under quarantine on May 6.——The foot and mouth disease quarantine in the townships of North Greenbush, East Greenbush, Sand Lake, Poestenkill, Grafton, Pittstown, and Schaghticoke, has been ordered to be raised except within a radius of three miles of any farm or on farms where foot and mouth disease has actually existed.——Fourteen families in the north end of Olean are under quarantine for smallpox. The public school has been closed and a general order has been issued for the vaccination of the school children.

Personal.—Dr. James T. Houghton, Saratoga Springs, a passenger on the *Lusitania* on her last trip, is on his way to take his place on the surgical staff of the Belgian Red

Cross.——Dr. Edgar A. Vander Veer has been elected president and Dr. George E. Gorham, secretary, of the Bender Hygienic Laboratory, Albany.——Dr. Henry Hun has been elected a member of the Board of Trustees. At the last meeting of the board, the resignations of Drs. Albert Vander Veer and Willis G. Tucker were accepted and votes of thanks were given to them for their labors.——Dr. O. W. H. Mitchell, has resigned as city bacteriologist of Syracuse to accept the chair of bacteriology in the College of Medicine of the University of Syracuse.——Dr. Mason R. Pratt, Syracuse, has assumed his new duties as superintendent of the Hebrew Hospital, Baltimore.——Dr. James E. Burns, Glen Cove, L. I., has been appointed inspector for the Long Island District under the new Harrison law.

New York City

Clinic Moves.—The municipal clinic for diseases of the throat and lungs has been moved to a building secured by the Board of Health at 420 Herkimer Street, Brooklyn.

Personal.—Dr. F. Warren Pearl of New York City was among those rescued from the *Lusitania*.——Dr. and Mrs. Henry H. M. Lyle arrived from Liverpool on May 13.

Smallpox on Arriving Ship.—The steamship *Havana*, which arrived from Havana, May 12, had aboard a case of smallpox. All the other passengers were ordered to be vaccinated before being allowed to land.

Division of Statistical Research.—A division of statistical research will be organized within the Bureau of Records on Jan. 1, 1916. An effort will be made to utilize the activities of this new department in such a way that other bureaus of the Department will be guided in their work by its findings. Such a division has been repeatedly recommended by special committees.

Dr. Goldwater Offers to Run Street Railway.—Health Commissioner Sigismund S. Goldwater, while admitting that he is going outside the bounds of his department, has published an unofficial offer made to Theodore P. Shonts, President of the New York Railways Company, to operate the cars on the Sixth Avenue line for an experimental period, as he is thoroughly convinced that at least 10 per cent. more cars could be run than at present.

Health Department Undertakes Novel Investigation.—The Department of Health has organized an experimental health district for the purpose of making a trial of the merits of local or decentralized municipal health administration. The activities of the department in "Health District No. 1" will continue to be identical with those of the department elsewhere. This plan is to be continued except that advantage will be taken of every means of increasing the effectiveness of the work by cooperation with local civic agencies and by arousing and sustaining in the district's residents an interest in personal hygiene. To this end an exhaustive study is being made of housing, occupation, recreation, and the habits and resources of the entire population, with the object of thus developing rationally a health program which will deal in an effective way with whatever is found actually to impede healthful living. All physicians and others interested in health matters are invited to visit the Headquarters of Health District No. 1 at 206 Madison Street.

Labor Health Bureau Started.—The Commissioner of Health, Dr. Sigismund S. Goldwater, has directed the formation of a new division of the Bureau of Infectious Diseases, to be known as the division of industrial hygiene, and of this, Dr. Lewis L. Harris has been designated chief. The tentative program of the work of this division includes:

> "1. A general 'industrial survey' comprising (a) a statement of the number of employes in the city in extra hazardous occupations, and (b) a general statement as to where the most unhygienic 'plants' under these industries are situated.
>
> "2. An intensive study of the conditions of work and the physical condition of the workers in, say, half a dozen of the most hazardous industries in the city.
>
> "3. Arrangements with certain dispensaries to open special occupational disease clinics to which all sufferers from occupational ills could be referred.
>
> "4. All observations should be checked with corresponding data as to home conditions, else conclusions may be assailed as incomplete. For example, tuberculosis among garment workers may be wholly due to home conditions and the workshop may be exceptionally hygienic. This could, in part, be done by co-operation with the Tenement House Department, although social service workers are the proper persons to obtain such data."

Summary of Health Activities of Academy.—The Public Health Committee of the New York Academy of Medicine has published in leaflet form, a summary of its activities for March and April, which include a medical estimate of certified milk; an amendment to the penal law relating to necropsies; an inquiry into the practicability and feasibility of so changing the present law as to require a year of hospital training for all applicants to practice medicine; a questionnaire as to the number of cases of heart disease in children cared for in hospital wards and dispensaries; the problem of providing adequate facilities for the treatment of drug habitués; the medical and sanitary care of inmates of the Home for the Aged; the conditions existing at the hospital of the Workhouse on Blackwell's Island and the need of improving the medical service; cooperation in the meeting on quarantine held April 20; consideration of many of the bills relating to public health and the strong opposition to the so-called Hinman bills and also the bill exempting Christian Science practitioners from the provisions of the medical practice act.

Limitations of the Dairy Score Card.—A bulletin recently published by the New York Agricultural Experiment Station at Geneva sets forth in detail an interesting series of experiments as to the relationship of dairy scores and bacteria values of certain milk supplies. These experiments were conducted by Dr. Brew and seem to show that a dairy score card does not furnish a reliable index to the quality of the milk, inasmuch as it is found that in many instances the best milk from a bacteriologic point of view came from low score dairies, while milk from high score dairies was found grossly contaminated. One of the most important conclusions arrived at was that one shortcoming of the score card was its inability to take account of the personal equation of the dairyman himself. A clean dairyman will produce a clean article even under adverse conditions, whereas a dirty individual would produce dirty milk even under the best conditions. It seemed, however, that where such a degree of care was given as was required by the numerous details noted on the score card it was safe to assume that due precaution was taken to safeguard against accidental pollution that was not guarded against on the average low score dairy farm. The finding that only two of the dairies used ice made it probable that insufficient cooling had something to do in creating the conditions reported.

Educational Lunch Room Opened.—The New York Department of Health, on May 10, opened an educational lunch room for its employees at the headquarters of the department. The enterprise is being financed by the employees themselves. At the opening of the lunch room there were present the Acting Mayor Hon. George McAneny, Borough President Marcus M. Marks, Professor Graham Lusk, and many other distinguished guests. The menu issued daily lists under the heading of "Specials" the item sold, the price, quantity, number of calories and grams of protein. Two specimen lunches furnishing a balanced ration at low cost and at high cost—22c and 46c—respectively are offered. Under the heading "Ready Every Day" items are again listed with price, quantity, number of calories and grams of protein. The back of the menu is given over to many hints with the heading "Food Wisdom." Examples are:

> Clerks, stenographers and the average adults doing office work need about 2,500 calories a day. Mechanics and artisans need about 3,000 to 3,500 calories per day, while laborers, longshoremen and others doing hard work need 3,500 to 4,500 calories per day.
>
> Your lunch should consist of sufficient food to supply about 1,000 calories; 90 per cent. of these should be in the form of starches and fats. Look at the specimen lunches on this bill of fare and notice that this can be obtained for various prices.
>
> Food should have not only sufficient nourishment, but should also supply certain necessary constituents to rebuild body tissue. Chief among these are protein and mineral salts.
>
> Protein is especially abundant in meat, eggs, fish, milk, cheese, beans and peas.

NORTH CAROLINA

Ground Broken for Hospital.—Ground was broken April 22, for the new Mercy General Hospital, to be built east of Charlotte.

Drug Law Conviction.—T. L. Love, a colored druggist of Raleigh, is said to have been convicted and fined $300 for violation of the state statute.

Investigates Prison Camps.—By direction of the governor, Dr. Watson S. Rankin, Raleigh, secretary of the State Board of Health, is making an investigation into the sanitary condition of the various prison camps in the state.

State Society to Meet.—The annual meeting of the Medical Society of the State of North Carolina will be held in Greensboro, June 15 to 17. On June 14 the State Health Officers Association will hold its annual session.

Sanitary Survey Started.—A sanitary survey of Orange County, which is being made by the United States Public Health Service and the North Carolina State Board of Health, was started by Surgeon Leslie L. Lumsden, U. S. P. H. S., this month. He is being assisted by Dr. E. C. Branson of the state university.

Personal.—Dr. George M. Cooper, Clinton, whole-time health officer of Sampson County, began work May 10, as chief of the bureau of rural sanitation and as assistant secretary of the State Board of Health.——The house of Dr. Garrett D. Gardner, West Asheville, was destroyed by fire, April 22, with a loss of $4,000.——Dr. John A. Williams, Greensboro, while visiting New York City was seized with a cerebral hemorrhage and taken to the Hudson Street Hospital. He is reported to be improving.——Dr. James D. Cochran, Fayetteville, has returned after a long stay in New York City and will remove to Nashville, Tenn.——Dr. H. D. Taylor, professor of bacteriology and pathology in the Wake Forest Medical School, has resigned to accept service with the Rockefeller Institute for Medical Research, New York City.——Dr. Owen H. Kenan, Wilmington, was one of the rescued passengers of the *Lusitania*. He was on his way abroad to engage in the Red Cross service. He was ill for several days, but is now reported to be convalescent.——Dr. Henry M. Tucker, Raleigh, has returned after several months postgraduate work and resumed practice.——Dr. George R. Cooper has been placed in charge of the newly created bureau of rural sanitation and just opened his office in the building occupied by the State Board of Health, Raleigh.——Dr. John W. P. Smithwick has been elected mayor of La Grange.——Dr. George W. Elias, Biltmore, and Dr. Montgomery H. Biggs, Rutherfordton, have been elected aldermen.——Dr. Raymond A. Pollock, New Bern, has returned after a course of postgraduate study in New York City.——Dr. Jesse M. Russell, Canton, has been commissioned lieutenant in the Medical Corps, North Carolina National Guard and assigned to duty with the Canton Ambulance Company, succeeding Dr. J. Rufus McCracken, Waynesville, resigned.——Dr. Michael P. Cummings has been elected mayor of Reidsville.

OHIO

Society to Study Alcohol.—The Ohio Society for the Study of Alcohol and Other Narcotics, was organized in Cincinnati May 6; Dr. Simon P. Kramer was elected chairman pro tem. The society has a charter membership of 23.

Physicians Organize.—The Cuyahoga Falls Medical Association was recently organized with the following officers: honorary president, Dr. Wayland C. Hough; president, Dr. John W. Caines, vice-president, Dr. Floyd D. Smith; secretary, Dr. Daniel C. Keller, Jr., and treasurer, Dr. Bayard T. Keller, Hudson.

Health Officials Must Not Interfere with Attending Physicians.—Under the new rules governing the work of the epidemiologist, communicable disease nurses and sanitary inspectors of the state will be given instructions that they are under no circumstances to "interfere with or criticize the treatment or diagnosis of the attending physicians."

Personal.—Dr. Mark D. Stevenson, Akron, is seriously ill in the People's Hospital, Akron, on account of an infected wound of the finger.——Dr. Morton W. Bland, state registrar of vital statistics, Bellevue, who has been critically ill, is reported to be improving.——Dr. Ben R. McClellan, Xenia, has been appointed a member of the state medical board, succeeding Dr. Augustus Ravogli, Cincinnati.——Dr. Cyrus W. Chidester, Delaware, has been re-elected great medical examiner of Ohio, by the state convention of Maccabees.

Communicable Diseases.—Quarantine against foot and mouth disease epidemic has been extended to the counties of Ashland, Medina, Mahoning, Lorain, Erie and Huron and also portions of Paulding, Miami and Montgomery counties.——Forty-one new cases of measles were reported in Cleveland May 4, bringing the total for four weeks to 719.——It is announced by the Youngstown Board of Health that the smallpox situation is now under control. At this time there were 18 cases under quarantine in 8 different houses. The health officer of Youngsville has been authorized to prepare the temporary detention hospital for use of the smallpox patients.——There are said to be nine cases of smallpox in the House of the Good Shepherd, Columbus, and sixteen cases have altogether been reported in the city.——In the Village of Berea and Middleburg township, fifteen cases of smallpox have been discovered.

State Society Meeting.—The annual meeting of the Ohio State Medical Association was held at the Hotel Gibson, Cincinnati, May 4, 5 and 6, and the following officers were elected: president elect and vice-president, Dr. Harmon B. Gibbon, Tiffin; president, Dr. William E. Lower, Cleveland; chairman of the committee on public policy and legislation, Dr. John H. J. Upham, Columbus; secretary-treasurer, and managing editor of the *Ohio State Medical Journal*, Dr. Clarence D. Selby, Toledo, and councilors—first district, Dr. Robert Carothers, Cincinnati; second district, Dr. John E. Hunter, Greenville; third district, Dr. Dana O. Weeks, Marion; fourth district, Dr. Charles W. Moots, Toledo; fifth district, Dr. Clyde E. Ford, Cleveland; sixth district, Dr. Edgar J. March, Canton; seventh district, Dr. James S. McClellan, Bellaire; eighth district, Dr. William E. Wright, Newark; ninth district, Dr. Joseph S. Rairdin, Portsmouth; and tenth district, Dr. Wells Teachnor, Columbus. Dr. George Dock, of Washington University, St. Louis, delivered the oration on medicine, the subject being, "The Thymus Gland," and Dr. Charles L. Scudder, Boston, gave the oration on surgery on "The Operative Treatment of Fracture of the Bone." Cleveland was selected as the next place of meeting.

PENNSYLVANIA

Vivisection Bill Recommitted.—"Dog Pound Bill," which would work for the promotion of animal vivisection was recommitted on third reading in the senate, May 10. This bill provides for the sale, distribution and use, for the promotion of biologic science, of unclaimed animals in public pounds, the sale figure to be $1.

New Bill for Optometry Board.—As a consequence of a meeting held in the office of the attorney-general, May 13, a bill may be passed in the last hours of the legislature establishing a state board for the examination and licensing of optometrists. Earlier in the session a bill was passed and vetoed. The governor objected on the ground that the bill limited appointments on the proposed board to persons selected by the Pennsylvania Optical Society, and that there was no reason why the optometrists could not place themselves under the existing state Bureau of Medical Education and Licensure.——Another bill providing for the appointment of an optometric examining board, now in the house, was the subject of conference. A tentative agreement was reached, it was said, that the measure should be amended so as to provide for the appointment of a board consisting of three physicians, three optometrists and the state superintendent of public instruction, and that the actions of this board should be subject to the approval of the State Board of Medical Education and Licensure.

Philadelphia

Personal.—Dr. Hobart A. Hare, who has been ill with pneumonia, has fully recovered and has resumed his practice and hospital work.——Dr. Willy Meyer of New York addressed the Philadelphia Clinical Association on May 17, and after the meeting was the guest of honor at a reception held at the Mercantile Club.

New Hospital for Babies.—A gift of 8½ acres of ground and several buildings on Manoa Avenue near Llanerch, Delaware County, has been made to the Babies' Hospital of Philadelphia, by a friend whose name has not been disclosed. The property has been altered to care for the hundreds of babies under 3 years old, suffering with "summer complaint." For four summers the hospital has used the buildings of the Children's Hospital at Wynnfield.

Penny Lunches in Schools.—Beginning next September the pupils in twenty-five elementary schools in South Philadelphia will be able to buy penny lunches at the morning recess. The superintendent of schools has been authorized to equip each building with luncheon counters. The home and school league for eight years has carried on luncheon rooms in nine schools, feeding 5,800 children.——A sample menu for the luncheons is as follows: One cent lunch—cocoa, graham wafers, milk, three pretzels, five stewed prunes, bean soup, rice pudding, sweet chocolate. Three cent lunch—bean soup, bread, stewed peaches or ham sandwich, cocoa, graham wafers, or hamburg steak in gravy, rice, bread.

Paris Hospital Staff Named.—Announcement has been made by Dr. J. William White of the personnel of the group of surgeons who will assume charge of the American Ambulance Hospital in Paris for the months of July, August and September, succeeding the Harvard group which has been in charge since April 1. Dr. James P. Hutchison will be managing head. The expedition is to be financed by voluntary contributions. About $10,000 is needed of which $5,000 has already been received. The physicians will pay their own expenses and serve without salary. The members of the group are, surgeon, Dr. James P. Hutchison, adjunct professor of surgery of the University of Pennsylvania; neurologist, Dr. Daniel J. McCarthy, professor of medical jurisprudence in the university; assistant surgeon, Dr. Edmund B. Piper, former chief resident surgeon of the University Hospital; Dr. Walter E. Lee, assistant surgeon at the Bryn Mawr and Germantown hospitals; Dr. Arthur E. Bitting, assistant surgeon, Pennsylvania Hospital; Dr. Peter Mc. Keating, Wawa, assistant attending surgeon at Bryn Mawr Hospital; bacteriologist, Dr. Samuel Goldschmidt Girrin, fellow in research medicine, University of Pennsylvania.

TEXAS

Malta Fever at Uvalde.—Five members of a family who were brought to Uvalde for treatment, April 30, have been found to be suffering from malta fever.

Tuberculosis Cottages Open.—The eight new tuberculosis cottages at the Fort Worth County Poor Farm were opened for occupancy, May 1. The city of Fort Worth has agreed to pay one half the expenses connected with the care of the patients.

New Officers for County Secretaries.—The Association of Secretaries for County Medical Societies of Texas held its annual meeting in Fort Worth, May 6, and elected Dr. James C. Loggins, Ennis, president; Drs. Bacon Saunders, Fort Worth, and Frank Paschal, San Antonio, vice-presidents; and Dr. Holman Taylor, Fort Worth, secretary, ex officio.

Hospital to Open.—Physicians of Oak Cliff met April 23, and formed the Oak Cliff Medical and Hospital Association for the purpose ultimately of securing the establishment of a hospital in the Oak Cliff section of Dallas. Dr. Bert E. Greer was elected president; Dr. Albert Wilkinson, vice-president, and Dr. Homer Donald, secretary of the association.

Northwest Texas Physicians Meet.—At the annual meeting of the Northwest Texas Medical Association held in Wichita Falls, April 13 and 14, the following officers were elected: president, Dr. James H. Eastland, Mineral Wells; vice-president, Dr. Claud F. Young, Bowie, and secretary, Dr. Robert A. Duncan, Graham. Mineral Wells was chosen as the next place of meeting.

Plea for County Hospitals.—Dr. William B. Collins, Lovelady, state health officer, has issued a statement calling attention to the importance of establishing county hospitals in the various counties of the state, and especially for those suffering from communicable diseases. The county hospital law, passed by the legislature in 1913, which permits any county to construct a hospital for the care of its sick, has been employed by only six counties up to date.

Personal.—Dr. John S. Cooper, Dallas, sailed for Liverpool, May 1, as surgeon on the Booth Line steamship *Alden.*——Dr. John C. Cassity, San Antonio, was shot and painfully wounded in an affray at Eminence, Ky., May 5.——Dr. James M. Nicks, Ranger, fell in Fort Worth, May 4, fracturing his left forearm.——Dr. D. Clinton Burkes, Belton, has entered on his duties as assistant in the Southwestern Hospital for the Insane, San Antonio.——Dr. Albert G. Clopton, Jefferson, is reported to be critically ill with pneumonia, at the home of his son in Washington, D. C.

State Association Meeting.—At the forty-ninth annual meeting of the State Medical Association of Texas, held in Fort Worth, May 4, 5 and 6, the following officers were elected: president-elect, Dr. James M. Inge, Denton; president, Dr. George H. Moody, San Antonio; vice-presidents, Drs. Murff F. Bledsoe, Port Arthur; Hardy C. Black, Waco, and Thomas D. Frizzell, Quanah; trustee, Dr. William R. Thompson, Fort Worth; councilors, first district, Dr. Felix P. Miller, El Paso; fourth district, Dr. Stoyell C. Parsons, San Angelo; twelfth district, Dr. Cleve C. Nash, Palestine; thirteenth district, Dr. Charles B. Williams, Mineral Wells, and fourteenth district, Dr. Alva W. Carnes, Hutchins; delegates to the American Medical Association, Drs. Andrew B. Small, Dallas; Holman Taylor, Fort Worth, and Manton M. Carrick, Dallas; and alternates, Drs. Frank Paschal, San Antonio; Edward H. Cary, Dallas, and John H. Foster, Houston. Galveston was selected as the next place of meeting.

German-American Doctors Prosecuted.—In the United States court at Houston early in April six men practicing as the German-American Doctors in Houston and two stenographers were convicted of using the mails to defraud and were sentenced to the United States prison at Leavenworth for various terms varying from three years to a year and a day. Among those convicted were Nathan and T. W. Hughes, Walter P. Pegram, A. S. Olsen and O. F. Bourque. The defendants were placed in the Houston jail. Drs. N. A. and T. W. Hughes, April 3, furnished bail in the sums of $3,000 and $2,000, respectively, and were released. A writ of error was allowed in the federal court at New Orleans on the application of the parties named, but all of the defendants except N. A. and T. W. Hughes were unable to furnish bond and remained in jail. At the trial it is said it was brought out that the defendants caused to be mailed typewritten letters exactly alike to all who made out and sent in diagnosis blanks, no matter what their symptoms might be. The treatment was said to be the same in each case, the "medicine" being mixed by a negro porter in the offices of the German-American Doctors, who testified to this fact, it is said. The case against the doctors was worked up by U. S. government secret agents.

WISCONSIN

Smallpox.—Eight cases of smallpox in one family were discovered in Castle Rock, April 30.——An order compelling the vaccination of all Madison schoolchildren was issued by the Madison Board of Health, April 30, on account of the existence of 14 cases of smallpox in that city.

Wisconsin Surgeons Meet.—At the annual meeting of the Wisconsin Surgical Association held in Milwaukee May 5 and 6, the following officers were elected: president, Dr. F. Gregory Connell, Oshkosh; vice-presidents, Drs. Alfred H. Levings, Milwaukee; John M. Dodd, Ashland; Karl W. Doege, Marshfield; and Dennis J. Hayes, Milwaukee; secretary-treasurer, Dr. Daniel Hopkinson, Milwaukee; and regents, Drs. William C. F. Witte and Alfred H. Levings, Milwaukee. During the session of the association, clinics were held at the various hospitals of the city.

Personal.—Dr. Fern A. Rice, Delavan, is reported to be seriously ill as the result of hemorrhage of the stomach.——Dr. Leo J. Dretzka, Milwaukee, has been appointed superintendent of the new Detroit City Hospital.——Dr. Jesse Y. Potter, New London, who was operated on in Appleton, in March, has returned home convalescent.——Dr. Henry A. Pfeiffer, Jackson, sustained severe injuries by being thrown from his automobile near Jackson, Wis., April 21.——Dr. John R. Currens has been elected for the third term, mayor of Two Rivers.——Dr. Edward C. Fish, Mosinee, is reported to be seriously ill.

News About Hospitals.—Sunnyview, the new Winnebago County Tuberculosis Sanatorium which is being erected near Oshkosh, at a cost of about $30,000, is nearing completion. ——A stock company has been formed at Wausau to build a forty-room hospital, to cost $75,000.——Contracts for the Deaconess Hospital, Green Bay, have been awarded to the Appleton Construction Company. The building will cost $65,000.——Bids have been invited for the construction of a third wing to the Milwaukee Isolation Hospital on Mitchell Street. The building is to cost $100,000. It will have two departments, one for diphtheria and one for smallpox. The diphtheria ward will accommodate from 45 to 90 patients and the smallpox ward, from 55 to 110 patients.

GENERAL

Harvard Alumni at San Francisco.—At the coming meeting of the American Medical Association in San Francisco there will be a table d'hote luncheon at the University Club, the date to be announced later, for members of the Harvard Medical Alumni Association. Dr. William P. Lucas of the University of California, San Francisco, is in charge of the arrangements.

Gorgas Prize Medal.—Referring to the Gorgas Prize Medal, to be awarded yearly by the Association of the Medical Reserve Corps, U. S. Army, New York State Division, the Board of Award announces that the competition is open to officers of medical corps of the Army, of the Medical Reserve Corps of the Army and of the Organized Militia. The medal will be awarded for the paper submitted which shows the most important advance in medicine or surgery on a medical or medico-military subject; preference being given to papers on a medico-military subject. The Board of Award consists of three members of the Faculty of the Army Medical School, appointed by the Surgeon General. All papers should be submitted by March 31 of each year, and should be addressed to the President of the Board of Award, Gorgas Prize Medal, Army Medical School, Washington, D. C. The award will be announced at the graduation exercises of the Army Medical School, on May 31 of each year.

FOREIGN

Adoption of Age Limit for University Professors.—A bill is now pending in the Italian legislature, after favorable report by a committee, decreeing an age limit without any exceptions for all the professors in the universities throughout Italy.

The Campaign Against Alcohol.—The authorities at Milan are planning the organization of eight anti-alcohol drinking places as a further step in the systematic campaign against alcohol. It is proposed to grant to private parties the concession for operating these municipal alcohol-less saloons.

Italian Research on Pellagra.—The *Policlinico* states that the government commission for the study of pellagra is now investigating the theory as to the origin and treatment of pellagra advanced by Alessandrini and Scala. Pellagrins will thus be given systematic courses of sodium citrate, on the one hand, and the region will be drained and otherwise treated in prophylaxis on the basis of Alessandrini's theory of the transmission of the disease.

The Campaign Against Alcohol in Russia.—The *Policlinico* of Rome relates that lotions and medicines containing alcohol and denatured alcohol are being consumed in Russia in large amounts since the supply of liquor has been cut off. A number of deaths have occurred in consequence of drinking these substitutes. The prefect of police issued a decree March 31 that no remedies containing alcohol could be dispensed without a physician's prescription. This raised such a storm of protests that the decree was rescinded and a new one issued to the effect that not more than 30 gm. of any medicinal preparation containing alcohol could be sold to one person.

Tobacco Forbidden to All Under Sixteen at Lübeck.—A decree was issued at Lübeck, March 9, 1915, which forbids persons under the age of 16 to smoke tobacco, cigars or cigarets. The parents or guardians of the young people are also held responsible for the enforcement of the decree. The sale of tobacco, pipes, cigars or cigarets to persons under 16 is forbidden, or their supply. The young persons themselves and their parents or guardians are alike held responsible for this. Penalties up to $15 or a jail sentence up to two weeks are provided for infraction of these regulations. The *Medizinische Klinik* comments that the outcome of these regulations, the first of the kind in Germany, will be watched with great interest. Lübeck is a separate state, an independent member of the German empire, a territory of 115 square miles, with a democratic constitution. The anti-tobacco decree is signed by the Public Health Service, the *Gesundheitsamt.*

WAR NOTES

Death of de Cérenville.—The *Revue Médicale de la Suisse Romande* appears with a mourning border on account of the death of the fourth member of its editorial staff, Prof. E. de Cérenville of Lausanne, aged 72. He was for a long time the sole editor of the *Bulletin*, the predecessor of the *Revue*, and a member of the medical faculty of the university.

Hospital Trains Donated to Germany.—Three motor trains for carrying wounded have been presented to Germany by friends in America. Each consists of a motor truck and two trailers, and is equipped to carry ten severely wounded or seventeen slightly injured. One has been despatched to the army under the Crown Prince, another to Hindenburg's army, and the third to the eighteenth army corps.

Italian Inspection of Sanitary Service in German and French Armies.—Prof. B. Rossi of Milan has been making an official tour of inspection of the workings of the army medical and Red Cross service in France and Germany. He was given every facility by the German and French authorities, and has been addressing the profession at Rome since his return.

German Surgical Congress Held at Brussels.—The annual meeting of the German Surgical Association was supposedly postponed on account of the war, but the surgeon-general of the army sent out a recent summons for the meeting to be held at Brussels. Hundreds of surgeons flocked to the meeting, which commenced at Brussels, April 7. All the sessions were devoted to military surgery and a number of new points learned from practical experience were brought out. A fine exhibition of roentgenograms was one of the features of the meeting. Garré, Körte, Payr and Bier delivered the leading addresses.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending May 15, 1915, lists the following contributions:

Dr. Franklin B. Miller, Pittsburgh, Pa.		$ 25.00
Dr. N. S. Jarvis, Captain U. S. A., New York, N. Y.		15.00
Dr. Charles G. R. Jennings, Elmira, N. Y.		23.00
Dr. H. E. Jenkins, P. A. Surgeon, U. S. N., Port Royal, S. C.		5.00
Dr. Luther G. Paul, Boston, Mass.		5.00
Dr. M. C. Smith, Lynn, Mass.		5.00
Arkansas Medical Society, Little Rock, Ark.		50.00
Dr. Charles Henderson Miller, Chicago, Ill.		10.00
Receipts for the week ending May 15		$ 140.00
Previously reported receipts		6,720.50
Total receipts		$6,860.50
Previously reported disbursements:		
1,625 standard boxes of food at $2.20	$3,575.00	
1,309 standard boxes of food at 2.30	3,010.70	
Total disbursements	$6,585.70	
Balance		$ 274.80

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg., Pittsburgh, Pa.

LONDON LETTER

LONDON, April 30, 1915.

The War

AN AUTHORITATIVE MEDICAL HISTORY OF THE WAR

Notwithstanding the tremendous strain on their energies, the authorities have shown commendable forethought with regard to the history of the war. A committee, under the presidency of the director-general of the Army Medical Service, has been formed to provide the necessary coordinating authority for the compilation of an adequate medical history of the war. For each of the chief subdivisions of the work, military and civilian members have been appointed, except in the case of the Section of Hygiene, both members of which are military. The constitution of the committee is as follows: Medicine, Lieut.-Col. O. L. Robinson and Prof. Sir William Osler. Surgery, Lieut.-Col. E. M. Pilcher and Col. F. F. Burghard. Pathology and Bacteriology, Col. Sir William Leishman and Capt. F. W. Andrewes. Statistics, Lieut.-Col. H. P. W. Barrow, Dr. John Brownlee and Lieut.-Col. W. N. Barron. Hygiene and Sanitation, Col. W. H. Horrocks and Lieut.-Col. W. W. O. Beveridge. Historical and Secretarial, Capt. F. S. Brereton and Dr. W. M. Fletcher.

DRINK AND THE WAR: GOVERNMENT PROPOSALS

In a previous letter to THE JOURNAL the effects of drink in interfering with the output of urgently required munitions of war was described. Mr. Lloyd George has brought forward proposals for dealing with it which are moderate and fall far short of the demands of the teetotal party. He could not agree to the total prohibition of whisky, as it is a beverage of particular localities, such as Scotland and Ireland, and the appearance of being unfair should be avoided. The mischief from the drinking of spirits, however, especially in its undiluted form, was incalculable. In order to restrain as much as possible the sale of spirits and of the most alcoholic beer, he proposed to levy a surtax on spirits and on all beers containing more than 7 per cent. of proof spirit. Saloonkeepers are not allowed to sell spirits without notice to the purchaser if they are lower than 25 per cent. underproof. In future the limit would be lowered to 35 per cent. underproof. Wines would be taxed on the same scale, which means quadrupling the duty. In areas producing war material there would be more control on the liquor trade, as in spite of the increased duty the men are earning such wages that they can buy quite enough to incapacitate them. There will be power to close any saloon, the presence of which is considered prejudicial to the output of munitions, the transport of material, or the discipline of the troops. As one of the causes of drunkenness is the fact that men cannot obtain reasonable refreshment near the works, there would be power to use either saloons or other premises for this purpose. There would also be power to suppress the sale of spirits and of heavy beer in these areas.

Vital Statistics: Increase of Cancer

The report of the Registrar General on births and marriages for the year 1913 has just been issued. The delay in publication is explained by the war having decreased the staff of workers in the department. The population of England and Wales at the middle of 1913 is estimated to have been 36,919,339, made up of 17,857,014 males and 19,062,325 females. The marriage rate for the year was 15.5 per thousand, being the same as in the preceding year, and 0.1 above the average in the ten years 1903-1912. The marriage rate in 1912 and 1913 showed an increase on those in the four preceding years. The provisional figures for 1914 indicate a further rise of 0.3 per thousand. The birth rate was 23.9 per thousand, that is, 2.4 below the average for the preceding decennium, and was, with the exception of that of 1912, the lowest on record. The provisional figures for 1914 indicate a further fall of 0.3 per thousand. The death rate, 13.7 per thousand, though higher than in 1910 and 1912, was 1.2 below the average for the ten preceding years. Infant mortality was 108 per thousand births, which was a slight increase over 1912, owing to an increase of mortality from diarrhea and enteritis. Mortality from all the principal epidemic diseases was below the average, that from typhoid fever and whooping cough being the lowest recorded. The death rate of tuberculosis was the lowest on record, and generally the mortality from diseases affecting the lungs was very low. On the other hand, cancer caused a higher death rate among both males and females than in any preceding year. The mortality among single women from ovarian cancer has been twice as great as that among the married, and cancer of the breast 45 per cent. greater; but uterine cancer shows a mortality among married women 73 per cent. higher than among unmarried women. Cancer of the breast is claiming a rapidly increasing number of victims, while uterine cancer is diminishing. As child bearing seems to increase the risk of the latter and diminish that of the former, it is suggested that the phenomenon is connected with the present decrease of fertility.

PARIS LETTER

Paris, April 29, 1915.

The War

SANITATION OF BATTLEFIELDS

At one of the last sessions of the Conseil supérieur d'hygiène publique de France, M. J. Brissac, director of public hygiene under the department of the interior, made an important report on the sanitation of battlefields, especially the removal of dangers to health resulting from the hasty burial of the bodies of human beings and animals.

A mission of inspection ordered by the minister of the interior January 22-25 last determined that the burials of the bodies of soldiers, French, allies and enemies and of the carcasses of horses and cattle have in many cases been done under unsatisfactory conditions, sometimes by the enemy himself, sometimes by our troops, sometimes by inhabitants who have returned to their homes and sometimes under the direction of the rearguard stations and services. The haste with which in most cases these interments have necessarily been made has not always permitted the taking of the proper hygienic precautions. A large number of graves and burial mounds are too near dwelling places, sometimes only a few yards away or have been made as chance may dictate in the midst of cultivated land, or even in the ditches along the roads. In general, these graves are much too shallow. In the cases of many burial mounds, the bodies are covered by a layer of soil not over 20 or 30 cm. (6 or 10 inches) thick. Moreover, when the burial has been made in clayey or marshy soil above shallow subterranean springs, the corpse is not quickly decomposed. The consequences are likely to become serious. Not to speak of the persistent odors of putrefaction, it is inevitable that the graves scattered among cultivable lands will soon be profaned. What is most to be feared, however, is the contamination of underground springs, fountains of potable water and public or private wells.

The administration has, therefore, planned the application, as early as possible, of measures of sanitation in the zones of the extreme rear, to be extended as rapidly as the national territory is liberated. In the first place, the exact location of all the graves and burial mounds in each commune will be ascertained and the data submitted to the geologic service for study with a view of determining the exhumations necessary for the protection of potable waters and inhabited places. The best locations for hygienically unobjectionable reinterment will be determined in advance by the geologists. Wherever possible, the new graves will be grouped in the village cemeteries. The most minute precautions will be taken for the identification of the body, if possible, at the time of exhumation. A record will be kept of all the data tending to identification, and the data recorded will be communicated to the municipalities. Thus all precautions possible will be taken to comply with the legitimate desire of families to identify lost members at the end of the hostilities.

The carcasses of horses, cattle and other animals will be disposed of by treatment with quicklime.

THE THERMAL STATIONS AND THE WOUNDED IN WAR

It is well known that certain posttraumatic articular lesions as well as wounds that cicatrize slowly are greatly benefited by appropriate treatment with mineral waters. Many thermal stations are provided with excellent outfits of mechanotherapeutic appliances capable of doing excellent service in cases of wounds which have healed but which have been followed by functional troubles. Dr. Fluteau, director of the medical service of the sixteenth region, the center of which is Montpellier, has addressed all the head physicians of hospitals within the region, inviting them to send to Lamalou and Balaruc the wounded and sick who are capable of receiving benefit from thermal treatment such as is given at these stations. The director of the medical service has delegated a physician on the staff to arrange with the secretary general of the Institut d'Hydrologie, for the general extension of similar measures.

Dr. F. Garrigou, former professor of hydrology at the Faculté de médecine de Toulouse, has just published in the *Revue* an article in which he mentions that France possesses the richest and most varied mineral springs; the Pyrenees especially possess the most varied sanatoriums in the world within a surface of a few kilometers. It would be possible to care for thousands of patients there.

ASSISTANCE FOR FAMILIES OF PHYSICIANS PLACED IN NEED BY THE WAR

Many families of physicians are now without resources either because of the sudden loss of the head of the family or because they have had to flee before invasion into the interior of the country. Therefore the Oeuvre parisienne de secours immediat et d'assistance à la famille médicale decided at its last general assembly to create a fund for the duration of the war under the heading of Secours de guerre à la famille medicale (war assistance for medical families).

EMPLOYMENT OF GREASED TULLE FOR THE TREATMENT OF WOUNDS

Since dressings of sterilized gauze have the disadvantages of adhering to wounds and of being difficult to detach, it has occurred to M. A. Lumière of Lyons to use compresses of tulle with a mesh of 2 mm. These compresses separated from each other by paper are sterilized by heat for an hour in a mixture composed of petrolatum, wax, castor oil and balsam of Peru. Thus prepared they do not adhere to the wounds while the secretions pass through the meshes of the tulle and are absorbed by the wadding of the dressings.

THE UTILIZATION OF RICE FLOUR IN THE MANUFACTURE OF BREAD

Although our stock of wheat is amply sufficient for the present, it is interesting to mention a communication made during a recent session of the Académie de médecine by Dr. Maurel, professor of experimental pathology at the Faculté de médecine de Toulouse. Maurel advises the use for bread of a mixture of 20 per cent. rice flour to 80 per cent. wheat flour. Such a mixture has no hygienic disadvantages. It gives a bread with nutritive qualities approximately equal to those of pure wheat bread; the loaf, moreover, looks and tastes good.

An important consideration is the fact that our rice from Cochin China offers a means of supplying the deficit in our future harvest of wheat. Maurel believes that the country would make great economy by employing rice flour in this manner, for a million tons of rice flour would cost France only 270,000,000 francs ($54,000,000) while a million tons of wheat flour would cost 420,000,000 francs ($84,000,000).

Dr. Armand Gautier, former professor of organic and inorganic chemistry at the Faculté de médecine de Paris, approves of Maurel's suggestion and suggests that the Japanese war bread, which is the best of all war bread, contains from 10 to 12 per cent. of rice flour. This bread is not subject to attack by insects and keeps its edibility and its good taste almost indefinitely. Notwithstanding, it must be recognized that bread containing rice flour is a little less nourishing than bread composed entirely of wheat since rice contains less gluten than wheat does.

Association News

THE SAN FRANCISCO SESSION

Changes in Schedules of Special Trains

Attention is called to a change in the schedule of the American Medical Direct Route Special which has just been announced. Instead of one train leaving Chicago at 5:30 p. m. Friday, June 18, as previously stated, there will be two trains over this route: first, an extra fare train (extra fare $10), leaving Chicago Friday, June 18, at 7 p. m., and arriving in San Francisco Monday, June 21, at 10:10 a. m., and second, a train leaving Chicago Thursday, June 17, at 9:30 p. m., and arriving in San Francisco at 8:55 p. m. Sunday, June 20. The latter is a regular fare train.

The special train for San Francisco, for members of the Sections on Ophthalmology and on Laryngology, Otology and Rhinology who will be in attendance on the meeting of the American Laryngological, Rhinological and Otological Society, will leave Chicago at 8:05 p. m., June 16, instead of June 15, as originally stated. The itinerary of this train will be the same except that it will be one day later than the schedule previously announced, arriving in San Francisco on Sunday, June 20, instead of on Saturday, June 19.

For the announcement of other special trains, see The Journal, May 15, 1915, page 1707.

Take Extra Wraps to San Francisco

The local Committee on Arrangements desires to emphasize the suggestion already made to Fellows who plan to attend this meeting, that the mornings and evenings in San Francisco are usually windy and chilly and that there may be cold fogs. It is advisable, therefore, for visitors to provide themselves with medium-weight clothing and to have at hand suitable wraps and overcoats.

Deaths

Jerome Henry Salisbury, M.D. Rush Medical College, 1878; a Fellow of the American Medical Association; died suddenly at his home in Wheaton, Ill., May 14, from cerebral hemorrhage, aged 61. He was born in Fitchburg, Wis. He was valedictorian of his class in Wisconsin University, from which he graduated in 1876; soon after his graduation in medicine he began his teaching career as professor of chemistry in the Northwestern University Woman's Medical School, Chicago, later becoming assistant professor of chemistry and then assistant professor of medicine in Rush Medical College. He also occupied the chair of medicine in the Illinois Post-Graduate School. Dr. Salisbury's contributions to medical literature were extensive and varied. His acquaintance with foreign languages, added to his knowledge of medical writings, made him a valued consultant in the editorial positions which he occupied for several years. He was coeditor with Dr. Frank Billings of the Section on General Medicine of the "Practical Medicine Series," and also coauthor with the late Prof. C. S. N. Hallberg of the "Physicians' Manual of the Pharmacopeia." He was also connected with the editorial staff of several other medical publications and since 1907 has been a member of the staff of The Journal. In the latter relationship his kindly manner and sympathetic aid won him the esteem and love of all his associates, who learned to value highly his extraordinary mental faculties and extensive medical knowledge.

Brigadier General William Henry Forwood, M.D., formerly surgeon-general, U. S. Army; University of Pennsylvania, Philadelphia, 1861. In August of the same year he entered the Army as assistant surgeon, and passing through the various grades became brigadier general and surgeon-general on June 8, 1902, and was retired by operation of law on reaching the age of 64 years on September 7, of the same year. He served in the Civil War, in which he was severely wounded in battle. He also served as president of the Army Medical School and was president of Army examining boards. During the Spanish-American War he built and was in charge of the hospitals at Montauk Point, L. I. He was a Fellow of the American Medical Association, the American Academy of Medicine, the Philadelphia Academy of Natural Sciences and many other scientific bodies. He also was professor of surgical pathology in the Georgetown University, Washington, D. C., and professor of military surgery in the Army Medical School. After General Forwood's retirement he made his home in Washington, where he died, May 11, after a prolonged illness, aged 76.

Catherine B. Patrick Slater, M.D. Northwestern University Womans' Medical School, Chicago, 1879; a Fellow of the American Medical Association; president of the Fox River Valley Medical Association in 1901-02; said to have been the first woman physician to gain entrance to the Berlin College of Medicine; surgeon to the Aurora City Hospital and for eighteen years a member of the Board of Education of Aurora, Ill.; died at her home in that city, May 10, from cerebral hemorrhage, aged 71.

Charles Calvin Knight, M.D. New York University, New York City, 1855; a Fellow of the American Medical Association, and the oldest practitioner of Peekskill, N. Y., where he had practiced for more than fifty-seven years; president of the medical board of the Peekskill, N. Y., Hospital; president of the Peekskill Savings Bank and a director of the Westchester County National Bank; died at his home in Peekskill, May 5, from a ruptured aneurysm of the abdominal aorta, aged 82.

Jay Webber Seaver, M.D. Yale University, New Haven, Conn., 1885; a Fellow of the American Medical Association; for twenty years physical director of the Yale University gymnasium; once president of the American Association of Physical Directors and of the Society of College Gymnasium Directors; eminent as a writer on physical development and physical education; died suddenly in Berkeley, Cal., May 6, aged 60.

Ralph Rollin Chase, M.D. University of Minnesota, Minneapolis, 1889; a Fellow of the American Medical Association; local surgeon of the Chicago, Milwaukee and St. Paul Railway at Eau Claire, Wis.; formerly president of the Eau Claire County Medical Society; for nine years health physician of Eau Claire; died at his home, May 4, from cerebral hemorrhage, aged 54.

Frederic Shurtleff Coolidge, M.D. Harvard Medical School, 1891; a member of the Illinois State Medical Society and American Orthopedic Association; a specialist in orthopedic surgery of Chicago; who moved to Pittsfield, Mass., about ten years ago on account of prolonged illness due to infection from an operation wound; died in New York City, May 15, from pneumonia, aged 49.

Robert W. Warner, M.D. Albany, N. Y., Medical College, 1880; a member of the Medical Society of the State of New York; coroner of Herkimer County; health officer of Ilion; first lieutenant and assistant surgeon of the Thirty-first Separate Company, N. G. S., N. Y.; local railway surgeon and postmaster of Ilion from 1898 to 1906; died at his home in Ilion, April 18, aged 56.

Bernard G. Maercklin, M.D. University of Pennsylvania, 1887; formerly a member of the Wisconsin State Medical Society; one of the founders of the Milwaukee Medical College, in which he filled the chair of oral surgery; later professor of oral surgery in Marquette University, Milwaukee; died in the Radium Hospital, Milwaukee, April 30, from carcinoma, aged 67.

Seth Wight Kelley, M.D. Harvard Medical School, 1874; a member of the Massachusetts Medical Society; at one time chairman of the Woburn, Mass., Board of Health; a member of the school board and first president of the board of directors of the Choate Memorial Hospital; died at his home in Woburn, Mass., May 5, from cerebral hemorrhage, aged 66.

George Warren Spencer, M.D. University of Michigan, Ann Arbor, 1878; professor of physiology, dermatology and chemistry in the Cleveland Homeopathic Medical College; dermatologist to the Huron Road Hospital and a member of the general staff of the Cleveland City Hospital; died suddenly at his home in Cleveland, May 1, aged 64.

Alpheus Butts Simmons, M.D. University of Georgia, Augusta, 1884; an honorary member of the Georgia Medical Society and a well known and much esteemed practitioner of Savannah, Ga., who retired from practice several years ago; died at his home in Montgomery Road, Savannah, February 11, from cerebral hemorrhage, aged 50.

William Bell, M.D. United States Medical College, New York City, 1880; formerly a member and president of the Michigan State Board of Medicine and Registration; a practitioner of Ionia County, Mich., for more than forty years; died at his home in Belding, Mich., May 1, from cerebral hemorrhage, aged 68.

Calvin H. Reed, M.D. Starling Medical College, Columbus, O., 1868; a veteran of the Civil War; one of the organizers of, and professor of obstetrics in, the Northwestern Ohio Medical College; for several terms a member of the Board of Education; died at his home in Toledo, May 4, from heart disease, aged 74.

Thomas Shriner, M.D. Jefferson Medical College, 1869; one of the best known practitioners of northeastern Philadelphia; for forty-six years physician to the Penn Widows' Home; a member of the board of managers of the Northern Dispensary; died at his home in Philadelphia, May 2, from heart disease, aged 72.

George Prosser Griffing, M.D. Bellevue Hospital Medical College, 1873; a member of the Medical Society of the State of New York, and for more than forty years a practitioner of the Greenpoint section of Brooklyn; died at his summer home in South Jamesport, L. I., April 5, from heart disease, aged 62.

Archibald Elexis McDonald, M.D. Harvard Medical School, 1865; a member of the Massachusetts Medical Society; a practitioner of Boston for many years; at one time surgeon of the Ninth Infantry, Mass., V. M.; died at his home in Jamaica Plains, Boston, April 28, aged 88.

William Austin Polglase, M.D. Chicago Homeopathic Medical College, 1878; of Brooklyn, N. Y.; formerly lecturer on nervous and mental diseases in the University of Michigan; died in the Presbyterian Hospital, New York City, May 4, after a surgical operation, aged 59.

Robert Cottington, M.D. Rush Medical College, 1877; a member of the Wisconsin State Medical Society; a pioneer practitioner of Chippewa County, Wis., and for several years president of the Board of Education of Bloomer; died at his home in Bloomer, Wis., April 17, aged 67.

Israel Wood Powell, M.D. McGill University, Montreal, 1860; a member of the Legislative Assembly; first president of the Provincial Board of Education and vice-president of the Canadian Confederation League; died at his home in Victoria, B. C., February 25, aged 75.

William Leslie McCandless, M.D. Rush Medical College, 1872; for more than forty years a practitioner of Pinckneyville, Ill.; a banker and postmaster of that city; died in St. John's Hospital, St. Louis, May 2, from pneumonia, aged 66.

Edward Garrett Altvater, M.D. University of Maryland, Baltimore, 1911; assistant at the Baltimore Quarantine Station; died in the University Hospital, Baltimore, May 2, a day after an operation for appendicitis, aged 30.

Patrick S. Donnellan, M.D. Royal College of Physicians and Surgeons, Ireland, 1886; for several years a practitioner of Philadelphia and laryngologist to St. Agnes' Hospital; died at Twyford Abbey, London, England, recently.

Joel Franklin Henry, M.D. Cincinnati College of Medicine and Surgery, 1883; a pioneer practitioner of the Fruitvale section of Oakland, Cal.; died at his home in Fruitvale, May 3, from disease of the kidney, aged 74.

Francis Button Marr, M.D. Cleveland University of Medicine and Surgery, 1869; College of Physicians and Surgeons of Ontario, Toronto, 1871; died at his home in Ridgetown, Ont., February 19, aged 74.

Vincent Cumming Cornwall, M.D. Victoria College, Coburg, Ont., 1867; for a number of years reeve of Omemee, Ont., and warden of the County of Victoria; died at his home in Omemee, March 12, aged 83.

Samuel Sylvester Selvey, M.D. Miami Medical College, Cincinnati, 1869; a practitioner since 1856; in 1877 a member of the Indiana State Legislature; died at his home in Dunkirk, Ind., March 2, aged 82.

Job R. Barker (license, Ohio, years of practice, 1897); for forty-four years a practitioner of Ashtabula, O.; a veteran of the Civil War; died at his home in Ashtabula, May 2, aged 70.

Willard Solomon Gayman, M.D. Miami Medical College, Cincinnati, 1894; died at his home in Canal Winchester, Ohio, March 20, aged 48.

Charles Rolph Clement, M.D. Long Island College Hospital, Brooklyn, 1878; died at his home in Groveport, Ohio, April 30, aged 62.

Marmaduke Allen Wood, M.D. University of Pennsylvania, Philadelphia, 1874; died at his home in Philadelphia, April 28, aged 65.

John H. Bell, M.D. Jefferson Medical College, 1858; a physician and druggist of Due West, S. C.; died at his home, April 19, aged 83.

Joseph D. Larimore, M.D. Medical College of Ohio, Cincinnati, 1868; died at the home of his son in Muncie, Ind., April 28, aged 79.

Gregory Arvide Martin, M.D. University of Vermont, Burlington, 1879; died at his home in Franklin, Mass., March 9, aged 72.

Tazewell Bradley, M.D. Medical College of Virginia, Richmond, 1884; died at his home in Roxbury, Va., February 26.

Clayton A. Button, M.D. University of Buffalo, N. Y., 1888; died at his home in Holland, N. Y., February 24, aged 61.

George Frederick Horn, M.D. Jefferson Medical College, 1914; died at his home in Darby, Pa., April 29, from neuritis, aged 22.

James Alfred Gaffney, M.D. Baltimore (Md.) University, 1898; died at his home in Bridgeport, Conn., April 26, aged 39.

Charles Wilkin Beemer, M.D. Trinity Medical College, Toronto, 1893; died at his home in Kenosha, Wis., May 2, aged 44.

John Cary Wells, M.D. Cincinnati, 1855; died at his home in Birmingham, Iowa, March 6, from heart disease, aged 86.

George W. Gregory, M.D. Albany (N. Y.) Medical College, 1879; died at his home in Elmira, N. Y., February 26.

Eli Wesley Fairman, M.D. Rush Medical College, 1872; died at his home in Brodhead, Wis., March 29, aged 68.

Francis August Schulte, M.D. St. Louis University, 1904; died at his home in St. Louis, February 1, aged 50.

Correction. The notice of the death of Dr. John D. Dickerson of Stockton, Md., which appeared in The Journal of May 1, is incorrect. Dr. Dickerson writes under date of May 10, that he does not know where the report originated.

Marriages

Theresa Chestora Snyder, M.D., Chingtu, West China, to Philip E. Hofmann, M.D., of Shanghai, China, at Tzechow, China, Dec. 16, 1914.

Walter Harold McNeill, Jr., M.D., to Miss Vivian Marguerite Peck, both of Mt. Vernon, N.Y., at Bronxville, N. Y., April 14.

Harold Williams Wiley, M.D., South Haven, Mich., to Miss Helen G. Usher of Newburyport, Mass., at New York City, May 1.

Frederick A. Steele, M.D., Oakland, Cal., to Miss Harriet Martin of Fresno, Cal., at Oakland, Cal., April 27.

George Phippen Sanborn, M.D., to Miss Adalyn P. Henderson, both of Boston, at Methuen, Mass., May 7.

Mable C. Lawrence Faulds, M.D., to Mr. Henry Williams, both of Gary, Ind., at Crown Point, Ind., May 4.

Arthur Husser, M.D., Hingham, Mont., to Mrs. Bertha Rachel McCrary of Havre, Mont., April 20.

George Cyrus Kindley, M.D., to Miss Florence May Goodman, both of Galveston, Tex., May 18.

Herbert T. Barnes, M.D., Pewaukee, Wis., to Miss Hazel Ryan of Fond du Lac, Wis., April 28.

William J. Carson, M.D., Atlanta, Ga., to Miss Elizabeth Gunning of Cumberland, Md., May 4.

Hugh P. Dorsey, M.D., Chicago, to Miss Guila Grace Chatron of Capac, Mich., May 4.

Max William Trentzsch, M.D., to Miss Leone Kreul, both of Highland, Wis., April 27.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

VENARSEN

Report of the Council on Pharmacy and Chemistry

The report which appears below was sent to the Intravenous Products Company for consideration. Having considered the firm's reply, the Council has authorized publication of its report along with the explanation sent by the Intravenous Products Company in reference to the variable composition reported for Venarsen, namely, that "only the first few experimental ampoules, sent to the doctors for clinical tests, were made without the Mercuric Iodide."

W. A. Puckner, Secretary.

This product is prepared by the Intravenous Products Company, Denver. The advertising circulars contain inconsistent statements as to its composition. According to one circular Venarsen is

> ". . . a comparatively non-toxic organic arsenic compound, 0.6 Gm. representing 247 Mg. (3¾ grains) of metallic arsenic in chemical combination. . . ."

According to another circular Venarsen is

> ". . . a comparatively non-toxic organic arsenic compound, 0.6 Gm., representing 247 Mg. (3¾ grains) of metallic arsenic and .78 Mg. (3/250 grain) metallic mercury in chemical combination."

Neither one of these statements gives any information as to the actual composition of the product. Inquiry addressed to the manufacturers elicited the reply that:

> "Venarsen contains in each 5 c.c. 0.6 Gm. Sodium Dimethyl Arsenate, .0016 grams of Mercuric Iodide, .0048 grams of Sodium Iodide in solution in a suitable vehicle for intravenous administration."

The following report of the examination of Venarsen is submitted by the Association's Chemical Laboratory:

LABORATORY REPORT

Three ampules of Venarsen were examined. The first ampule was labeled

> "A comparatively non-toxic organic arsenic compound, representing 247 Mg. (3¾ grs.) of metallic arsenic in chemical combination. 5 c.c. — 0.6 Gm."

Practically the same statement appeared in an advertising circular wrapped around the ampule. The second and third ampules bore labels identical with the first. The circulars differed from that accompanying the first ampule in that the presence of mercury is also announced, thus:

> "Venarsen is a comparatively non-toxic organic arsenic compound, 0.6 Gm., representing 247 Mg. (3¾ grains) of metallic arsenic and .78 Mg. (3/250 grain) metallic mercury in chemical combination and is so prepared and enhanced as to present the ingredients to the blood in their most acceptable form."

Thus, although the potent elements said to be contained in Venarsen are named, its chemical character (the combination in which the elements occur) is not disclosed.

The ampules contained a transparent, odorless solution, possessing the yellow color of salvarsan solution (an aqueous solution of sodium cacodylate, mercuric iodid and sodium iodid in the amounts said to be present in Venarsen is colorless). Qualitative tests demonstrated the presence in each of the three ampules of sodium cacodylate (sodium dimethyl arsenate), and the absence of arsenites, arsenates, phosphates, arsanilates (atoxyl, soamin) and arsenphenolamins (salvarsan, neosalvarsan). Titrated with normal hydrochloric acid, using methyl orange as indicator (as outlined in New and Nonofficial Remedies, 1915, p. 40), the three ampules were found to contain the equivalent of respectively, 0.219, 0.253 and 0.216 Gm. or an average of 0.244 Gm. arsenic. (According to statements of the firm each 5 c.c. of Venarsen contains 0.6 Gm. sodium dimethyl arsenate (sodium cacodylate), equivalent to 0.247 Gm. arsenic or 41.66 per cent. Sodium dimethyl arsenate, as described in New and Nonofficial Remedies, contains 3 molecules of water and 35 per cent. arsenic. This indicates that the sodium dimethyl arsenate used in Venarsen contains less water of crystallization than the N. N. R. product).

Neither mercury nor iodid could be found in the first ampule. (The company has since explained that mercury was absent only from the first experimental samples.) The second and third ampules contained iodid and mercury in small amount. The exact quantity was not determined because, on the basis of the mercury content declared, a single accurate mercury estimation would have required the purchase of something like 25 to 100 ampules. As each ampule sells for two dollars, the cost of the material was considered prohibitive.

From the foregoing we conclude that the first ampule examined consisted essentially of a solution containing 0.625 Gm. of sodium cacodylate, N. N. R., while the second and third ampules contained 0.722 Gm. and 0.617 Gm. sodium cacodylate, respectively, and in addition, a mercury compound, probably mercuric iodid, dissolved by sodium iodid.

In other terms, Venarsen as now marketed is a simple solution containing approximately 9 grains of sodium cacodylate, 1/40 grain of mercury "biniodide" and ¾ grain of sodium iodid to each full dose.

In the past the preparation has been in conflict—especially serious because of the potent character of the drug—with Rule 1 (secrecy of composition). The manufacturers have removed this conflict by furnishing a statement of composition; and it is to be expected that they will likewise take steps to remove the manifestly erroneous impression now likely to be gathered from the circulars, namely, that the preparation is rather analogous to salvarsan. These conflicts, however, call for comment, since physicians have doubtless used the material under misapprehensions.

As to therapeutic claims, the preparation is said to be effective and safe in syphilis; "lower toxicity and greater spirochaetacidal power than other known arsenic compounds" are among the claims. No real evidence for either of these claims is presented. Sodium cacodylate has been tried as an antisyphilitic, but with indifferent success; certainly the results have not been comparable to those of salvarsan. The mercury could conceivably enhance its effect, but the dosage appears too small and the course too short for this influence to be pronounced. Moreover, a careful physician would not give arsenic and mercury in fixed proportions.

The claim of comparative non-toxicity is probable enough from what is known about the cacodylate. No physician should feel "safe," however, when injecting intravenously 0.6 gm. of sodium cacodylate every four to six days. Aside from the grave dangers of intravenous injection in general, the possibility of idiosyncrasies to arsenicals should always be borne in mind.

Finally, Venarsen is claimed to be "indicated" in pellagra, tuberculosis, anemia, etc. No evidence is presented on which to base an opinion as to its efficiency in pellagra. Those who have studied that disease would not be likely to resort to this treatment. In tuberculosis and anemia, there is no sufficient advantage in giving the cacodylate intravenously.

To summarize, Venarsen treatment consists essentially in the intravenous injection of large doses of sodium cacodylate. The other ingredients, as well as the name, merely constitute so much mystification. While the cacodylate probably has some effect on the conditions for which it is advised, there is no evidence that its value even approaches that of salvarsan in syphilis, or that the intravenous use is preferable to the ordinary methods. The dangers are manifest, although they may not be so great as with salvarsan. No justification has been established for its use in tuberculosis and pellagra.

Physicians who wish to try intravenous cacodylate administration should have a full realization of the dangers of such treatment, and in order to avoid further risks, will do well to refrain from combining other drugs with the cacodylate in fixed proportions.

It is recommended that Venarsen be held in conflict with Rule 6 (unwarranted therapeutic claims), Rule 7 (poisonous ingredients not stated on label), Rule 8 (name does not express the chemical composition) and Rule 10 (unscientific combination) and that this report be published.

Correspondence

Wassermann Reaction as a Clinical Test

To the Editor:—On page 1463 of The Journal for May 1, 1915, Dr. Heimann discusses several statements made in my contribution to The Journal of March 6. Of the many reasons for scientific discussion, that which holds the place of second importance is the speaking of different languages; and this I take to be the cause of the present disagreement.

The object of my contribution was not to enforce the generally accepted rules of Wassermann evidence, but rather to call the attention of the practitioner to a few relatively exceptional points not always clearly understood. Had Dr. Heimann written his contribution in advance of my own, I might, indeed, have taken it for a text.

Let us consider his conclusions:

> "1. The Wassermann is negative at times in active syphilis, but only under definite and characteristic circumstances, and when this is understood, no confusion should arise."

Surely no practitioner could admit the universal truth of such a statement. It is well known that the gravity of the Wassermann reaction, though it usually runs almost parallel with the gravity of the known somatic lesions, does not quite parallel them. Quite recently I have seen two cases, the one with a pustular, the other with a papular skin lesion, both with negative Wassermanns, both promptly cured by antisyphilitic treatment (one verified by biopsy). By no combination of "definite and characteristic circumstances" can the negative Wassermann in such cases be predicated.

But this point is much more brilliantly illustrated by the doctor's second conclusion:

> "2. The Wassermann test may be positive in the absence of syphilis, in certain other diseases, and under certain conditions easy to recognize and exclude."

So far as I know only one single series of over 100 cases supposedly nonsyphilitic and tested by the Wassermann reaction has revealed results that the reporter could fully explain. Inevitably there crops up the small percentage of cases with no vestige of the disease, but with a positive Wassermann reaction.

It has, indeed, been generally accepted that some 1 or 2 per cent. of males infected with syphilis give no early history, and the worst that has been alleged of any American or highly civilized European community is that some 10 per cent. of its citizens are syphilitic. If but 2 per cent. of these syphilitics do not know they are diseased, we may expect an error of two per thousand in our Wassermann reactions on supposedly healthy males. The actual error is anywhere from twenty times as much upward.

Dr. Heimann's final conclusion is that "matrimony should be withheld from individuals with a positive Wassermann test." With this conclusion I most heartily disagree. I recognize the dangers that threaten the syphilitic with a positive Wassermann reaction far more clearly, I think, than Dr. Heimann does those that threaten the syphilitic with a negative Wassermann reaction. Neither can be guaranteed absolutely safe from relapse in his own person. We need not pretend to disagree on the necessity of exerting every effort to make the Wassermann reaction negative, whether the patient is to be married or not. But this is purely a personal matter of fortifying the patient himself against possible relapse of his disease.

Although we all know that every lesion of syphilis is caused by spirochetes, and that sections from syphilitic tissue removed from a patient many years diseased are infectious when injected into monkeys, yet the clinical fact remains that the lapse of time sufficient to carry the patient beyond the period when he is likely to have eroded papules in the mouth or in the genitals will assure him against the possibility of infecting better than any early demolition of his positive Wassermann reaction. That syphilis may be transmitted from husband to wife after the fifth year of disease is perfectly well known as a clinical rarity, to be looked for only in those patients with persistent relapses of the secondary type; relapses that, of all others, are the most controllable by our modern methods.

But what I am arguing for is mercy to the unfortunate individual whose Wassermann reaction remains positive in spite of our most furious efforts to keep it negative. I do not feel that his positive reaction should stand in the way of matrimony after a sufficient time has gone by to protect his wife from infection.

When all is said and done, however, the difference between Dr. Heimann's point of view and my own is perhaps that infinite difference between those who are dazzled by the splendors of twentieth century science and make science a creed; regard her tentative hypotheses as certainties; her Wassermann reactions such that "no confusion should arise" in their interpretation—between them, on the one hand, and on the other hand those clinicians who, while acclaiming with great joy all the help that science can offer, do not feel that the microscope lends infallibility to the eye or the test tube to the finger. To these seekers after the grain of truth which lies hidden in the turbulent forefront of scientific progress, I submit my case.

Very possibly my contention is quite wrong, but wrong or not, I know—nothing.

Edward L. Keyes, Jr., M.D., New York.

Stay Stitch for Deep Wounds

To the Editor:—In The Journal, April 17, 1915, p. 1317, under the caption, "A New Stay Stitch for Deep Wounds," Dr. Edmond Bonnot of St. Louis describes and illustrates a stitch which I have been using for many years and which has been adopted by many of my colleagues. By some it is named for me, but it is not mine. I saw it described years ago, but have forgotten the name of the magazine and the author, remembering only that it came from one of the nearer Southern States, perhaps Virginia. I have called it the mattress suture on edge, have described it frequently while operating before my classes at Bellevue and elsewhere, and have always taken pains to disclaim any credit for its invention.

It is a useful stitch, particularly in all locations in which there is a tendency for edges to be inverted, along median depressions, over the sacrum, over the sternum, indeed, in almost any place where the skin is thick. It is also of value where the tissues are relaxed, for instance, in perineal sutures, because, no matter how much the tissues are folded, the edges cannot be turned in. As a rule, I use three or four in the ordinary celiotomy incision, afterward closing the edges of the skin with a running suture of fine intestinal silk. I think Dr. Bonnot's suggestion, that it should be tied over tubing, takes away a good deal of its value, because the tubing is liable to cause eversion of the edges of the skin, and one wants neither eversion nor inversion.

George David Stewart, M.D., New York.

Deaths from Laxative Tablets Containing Strychnin

To the Editor:—The coroner of Macon County reports four deaths of children in the last four years from eating laxative tablets containing strychnin; in addition to this I have knowledge of several other near deaths from the same cause. If this is the report for one county in Illinois, what must be the fatalities in the United States where the use of the favorite "A. S. B." and the "Hinkle" tablet, each containing 1/60 grain of strychnin, is so common?

The red color of the Hinkle tablet is especially attractive to children, and in one of the fatal cases reported, the victim had eaten fifteen of these tablets; the poison or caution label on the box had no deterrent effect on either the child or the careless mother. The thought occurred to me, Why put strychnin in laxative tablets, and of what value is strychnin in these combinations? Admitting the value of strychnin in repeated doses in atonic conditions of the intestines, of what value can the usual single evening dose of 1/60 grain have?

In the fatal cases also the toxic effect of the belladonna was very evident. With the large number of nonpoisonous laxatives available, such as cascara, aloin, rhubarb and phenolphthalein, there is no sense in adding the poisonous strychnin.

I am sure that the child's welfare societies can do no better work than to check this useless "slaughter of the innocents" through the use of these strychnin-containing laxative pills or tablets. Everett J. Brown, M.D., Decatur, Ill.

[Comment.—Accidents of the character reported have frequently occurred in the past. There seems to be no remedy, except to urge greater care on the part of physicians who prescribe these preparations and on the part of parents and others who keep them on hand. It would be of decided advantage if these small but dangerous pills or tablets could be dispensed in containers—phials—of special shape, with the word "POISON" distinctly marked on the container; certainly there should be some method of marking that would definitely indicate the dangerous character of the contents. —Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ACONITE IN PNEUMONIA

To the Editor:—Will aconite or its alkaloid break up pneumonia?
J. M. Ousley, M.D., Lost Creek, Tenn.

Answer.—The older pathology of pneumonia regarded it as an intense disturbance of the circulation which eventuated in an inflammatory exudation into the alveoli of a fibrinous mass containing a large number of red blood cells and a proportionally larger number of leukocytes. The initial congestion was regarded as due to the deranged action of the heart and blood vessels. Hence it was believed by many that if we could overcome or oppose this abnormal change in the circulation, the disease could be aborted. This was the basis for the practice of bleeding in the early stages, of the use of blisters, of local bloodletting and of the administration of aconite and veratrum viride. The use of these remedies has been compared to bleeding; an old saying has it that by aconite we bleed the patient into his own veins.

With a later conception of pneumonia as an infectious disease, the use of such measures becomes less rational. We now conceive of the congestion as a reaction on the part of the general system against the presence in the lung of bacteria, some of which have usually penetrated from the alveoli into the blood accompanied by their toxins, which incite the nervous system and through it the circulation to throw out an exudate of blood to destroy the micro-organisms and neutralize their toxic products. Under this conception we do an injury and hinder the recuperative processes of nature when we attempt to hinder this application of a curative serum to the invading bacteria.

Experience has shown that pneumonia patients do as well or better without the depressing measures designed to weaken the heart and lessen the congestion, by retarding the circulation or diverting the blood elsewhere. Attempts to abort pneumonia have proved futile. Some observers have thought that they were able by means of aconite or veratrum viride to check the disease in its first stage. There is no reliable evidence that warrants such belief.

DENTAL CLINICS

To the Editor:—Can you give me information as to cities in which dental clinics have been established by a board of education directly, or in connection with a board of health? Also, what success has met their efforts and what opposition has been encountered on the part of the parents? I would furthermore be interested in any details with which you might supply me in the establishment or management of such institutions. R. B.

Answer.—Through Dr. W. G. Ebersole, secretary and treasurer of the National Mouth Hygiene Association, Cleveland, and others interested in mouth hygiene, the following information has been obtained:

Cleveland has seven dental clinics. These are supported by an auxiliary of the National Mouth Hygiene Association and by funds raised by the principals of the schools of that city. Cincinnati has three clinics supported by the municipality. Detroit has ten clinics operated under the board of health and financed by annual appropriation. Rochester has four clinics. Formerly these were supported by the local dental society, but recently the municipality has made appropriation for the work. Buffalo has four clinics supported by the municipality. Philadelphia has several clinics supported by the city. New York City has a number of school clinics maintained by the board of education, and there are four clinics in connection with the various hospitals, maintained by cooperation of the dentists and various philanthropic organizations of that city. Morristown, N. J., has recently established a school dental clinic supported by the united efforts of the dentist and welfare organizations of that city. Several years ago the Odontographic Society of Chicago organized dental clinics in connection with a few of the schools. Later Mr. Julius Rosenwald equipped seven clinics and the dentists three others. For one and one-half years Mr. Rosenwald supported these ten clinics. In 1914 the city took them over, employing ten dentists at a salary of $100 a month each, for ten months in the year. Dr. Molt, a dentist, is a member of the board of health, and has special charge of the dental clinics.

Other clinics are being organized by the National Mouth Hygiene Association in Canton and Dayton, Ohio; Kansas City, Mo.; Louisville, Ky.; Joliet, Ill.; Washington, D. C.; Jacksonville, Fla.; Atlanta, Ga., and Lynchburg, Va.

The work of the established clinics seems to progress reasonably well, but the clinics are wholly inadequate to the needs of the communities in which they operate, since only a small percentage of the children needing dental attention in large communities can be served owing to the lack of funds and dentists. Antagonism by parents against examination and care of their children's teeth is not serious, and need deter no one from entering on this work.

Further information as to the methods of organization and management of dental clinics may be obtained from Dr. W. G. Ebersole, Secretary National Mouth and Hygiene Association, Schofield Building, Cleveland, Ohio.

DEPENDENCE OF DISEASE ON FAULTY DIGESTION

To the Editor:—Has any physician of recognized authority ever stated, or intimated in any way, that from 75 to 90 per cent. of all diseases are due primarily to faulty digestion, or that a derangement of the digestive organs is the first cause of that percentage of diseases? In other words, if digestion and physical resistance were normal, would it render us immune from 90 per cent. of the present diseases?

An answer to this, or any information as to how far a derangement of the gastro-intestinal canal, and organs bearing direct relation to the same, is responsible for the onset of disease, or its first cause, will be very gratefully received. J. W. Lowe, M.D., Mentor, Ohio.

Answer.—So far as can be determined, no authority has published a statement that from 75 to 90 per cent. of diseases are due primarily to faulty digestion. Apparent health and good digestion are not proof against infections, since persons in robust health may fall victims to infectious diseases. An abnormal state of the mucous membrane of the gastro-intestinal tract in certain cases renders it more liable to permit the entrance of micro-organisms and toxins which may cause systemic symptoms, but there is little evidence that this abnormal condition is necessarily associated with any definable disease of the gastro-intestinal tract. It is probable that the healthy digestive tract permits the entrance of poisons in certain cases, without suffering any immediate damage. Lead may produce disorders of the nervous system, although the intestine through which it is absorbed is not affected. In the present state of our knowledge, it would be impossible to say what percentage of disease is due to imperfection in the digestive processes or disease of the digestive organs.

SHORTENING OF THE WORD "FEEBLEMINDEDNESS"

To the Editor:—I have understood that among some writers the word "feeblemindedness" is being shortened to "feeblemindness." It has appeared in a recent issue of the *Survey*. Do you know of any authority for such a simplification, which seems to change the force and sense of the word? G. S., M.D., New York.

Answer.—We know of no authority for shortening the word "feeblemindedness" by omitting the participial suffix. As our inquirer states, such a change is a radical departure, and somewhat modifies the sense of the word.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

California: San Francisco, June 15-18. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

Delaware: Dover and Wilmington, June 15-17. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Florida: Jacksonville, June 15-16. Sec., Dr. E. W. Warren, 102 Front St., Palatka.

Georgia: Atlanta and Augusta, June 2-4. Sec., Dr. C. T. Nolan, Marietta.

Illinois: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.

Iowa: Iowa City, June 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Kansas: Kansas City, June 8-10. Sec., Dr. H. A. Dykes, Lebanon.

Kentucky: Louisville, June 8-10. Sec., Dr. A. T. McCormack, Bowling Green.

Louisiana: New Orleans, June 3-5. Sec., Dr. E. L. Leckert, 716 Machea Bldg., New Orleans.

Maryland: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.

Maryland: Homeopathic, Baltimore, June 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

Michigan: Detroit, May 27-29; Ann Arbor, June 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, June 1-4. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.

Mississippi: Jackson, June 15-16. Sec., Dr. E. H. Galloway, Jackson.

Missouri: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

Nebraska: Lincoln, June 10-11. Sec., Dr. H. B. Cummins, Seward.

New Jersey: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

New York: Albany, Buffalo, New York and Syracuse, May 25-28. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

North Carolina: Greensboro, June 8. Sec., Dr. H. A. Royster, Raleigh.

Ohio: Columbus, June 8-11. Sec., Dr. George H. Matson, Columbus.

Pennsylvania: Philadelphia and Pittsburgh, June 1-3. Sec., Dr. Nathan C. Schaeffer, Harrisburg.

Rhode Island: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.

South Carolina: Columbia, June 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.

Vermont: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.

Virginia: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.

Wisconsin: Milwaukee, June 29-30—July 1. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

Michigan Reciprocity Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports that 18 candidates were licensed in Michigan, through reciprocity, from Jan. 11 to April 16, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
Northwestern University	(1911) (1914)	Illinois
Rush Medical College	(1894) New York; (1902)	Indiana
University of Illinois	(1913,2)	Illinois
University of Louisville	(1910)	Kentucky
University of Maryland	(1909)	Maryland
Harvard University	(1909)	Maine
Univ. of Michigan, Dept. of Medicine and Surgery	(1910)	Washington
St. Louis College of Physicians and Surgeons	(1910)	Texas
Cleveland College of Physicians and Surgeons	(1911)	Ohio
Miami Medical College	(1908)	Ohio
Pulte Medical College	(1889)	Kentucky
Jefferson Medical College	(1905) New Jersey; (1912)	Illinois
Medical College of the State of South Carolina	(1908)	S. Carolina
Marquette University	(1914)	Wisconsin

California January Reciprocity Report

Dr. Charles B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports that 27 candidates were licensed through reciprocity at the examination held at Sacramento, Jan. 12-13, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, San Francisco	(1911)	Nevada
Columbian University	(1902)	Washington
George Washington University	(1914)	Dist. Colum.
Chicago College of Medicine and Surgery	(1910)	Penna.
Hahnemann Medical College and Hospital, Chicago	(1897)	Illinois
Northwestern University	(1906,2) (1914)	Illinois
Rush Medical College	(1904) (1908) Arizona; (1900)	Illinois
University of Illinois	(1914)	Illinois
Johns Hopkins University	(1902)	Montana
University of Michigan, Dept. of Med. and Surg.	(1907)	Michigan
University of Minnesota	(1891)	Minnesota
Barnes Medical College	(1897)	Michigan
St. Louis College of Physicians and Surgeons	(1906)	Illinois
University Medical College, Kansas City, Mo.	(1904)	Kansas
John A. Creighton Medical College	(1911)	Nebraska
College of Phys. and Surg. in the City of New York	(1906)	New York
Homeopathic Med. Coll. of the State of New York	(1868)	New York
Long Island College Hospital	(1876)	Wisconsin
Syracuse University	(1876)	U. S. Army
University and Bellevue Hospital Medical College	(1903)	New York
University of Buffalo	(1903)	New York
Willamette University	(1905)	Washington
Medical College of Virginia	(1914)	Virginia

Iowa January Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Jan. 19-21, 1915. The total number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 13, of whom 11 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Medicine and Surgery	(1914) 88, 94,	94
Hahnemann Medical College and Hospital, Chicago	(1908)	89
Northwestern University	(1911) 90; (1912) 93; (1913)	91
University of Illinois	(1914)	89
Hospital College of Medicine, Louisville	(1885)	82
Harvard University	(1915)	90
John A. Creighton Medical College	(1914)	87
FAILED		
Hahnemann Medical College and Hospital, Chicago	(1909)	82*
Rush Medical College	(1885)	75*

* Conditioned in one subject.

Wisconsin January Report

Dr. John M. Beffel, secretary of the Wisconsin State Board of Medical Examiners, reports the practical and written examination held at Madison, Jan. 12-14, 1915. The total number of subjects examined in was 24; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 19, of whom 13 passed and 6 failed, including 1 osteopath. Twenty-eight candidates, including 6 osteopaths, were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1907) 84; (1914) 84,	84
Chicago College of Medicine and Surgery	(1914)	85
Cornell University	(1914)	84
Jefferson Medical College	(1913) 82,	89
University of Vermont	(1914)	82
Marquette University	(1913) 75; (1914) 83; (1915) 81,	81
Queen's University	(1914)	78
FAILED		
Chicago Coll. of Med. and Surg.	(1910) 59; (1914) 75;*(1915)	73
Marquette University	(1913)	69
Royal University of Genoa	(1908)	57

* Conditioned in one subject.

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Georgetown University	(1913)	Illinois
Chicago College of Medicine and Surgery	(1913)	Michigan
Coll. of Phys. and Surgs., Chicago	(1901) (1907) (1912)	Illinois
Northwestern Univ.	(1903) Illinois; (1912) Missouri (1913)	Illinois
Rush Medical College	(1911) (1913)	Illinois
University of Illinois	(1913)	Illinois
University of Louisville	(1905)	Kentucky
Boston University	(1891)	Arkansas
Detroit College of Medicine	(1894)	Michigan
St. Louis College of Physicians and Surgeons	(1906)	Illinois
University Medical College, Kansas City	(1911)	Illinois
Long Island College Hospital	(1898)	New York
Starling Medical College	(1886)	Ohio
Jefferson Medical College	(1913)	Penna.
University of Pennsylvania	(1901)	Penna.
Memphis Hospital Medical College	(1909)	Tennessee
University of Tennessee	(1914)	New Mexico

Book Notices

John Shaw Billings: A Memoir. By Fielding H. Garrison, M.D. Cloth. Price, $2.50. Pp. 432, with illustrations. New York: G. P. Putnam's Sons, 1915.

If those of us who were practicing medicine twelve or fifteen years ago were asked to-day what John Shaw Billings had done to make him so well known, many of us, we feel very sure, would answer that his great life work was that connected with the Surgeon-General's Library at Washington, and with those wonderfully practical guides to medical literature, the "Index Catalogue of the Library of the Surgeon-General," its offshoot, the "Index Medicus," and the "National Medical Directory." And we would be justified in this, for he practically created that library, and was at its head for nearly a third of a century; in more senses than one, he made the "Index Catalogue," and was responsible, with the late Dr. Fletcher, for the "Index Medicus." These accomplishments are certainly worthy of commemoration. Still, these were mere incidents in the life work of John Shaw Billings, as one will realize on reading this biography.

To John Shaw Billings, more than to any other man except the donor himself, must be given the credit for Johns Hopkins Hospital and Medical School. He it was who worked out the general plans of the buildings and superintended their construction. He it was, also, who worked out the underlying principles on which the combined institutions, the hospital and medical school, should be and are conducted. He had much to do, too, with the selection of at least two of the faculty, Dr. W. H. Welch and Dr. William Osler. A most interesting chapter in this biography is that describing the founding of Johns Hopkins Hospital.

Then again, his connection with the Medical Department of the University of Pennsylvania, 1891-1896, is known to but few, and yet here he left his impress. He was selected as the director of the Laboratory of Hygiene, which he planned, and of the University Hospital. He was lecturer on, and later professor of hygiene and vital statistics. Except for the last year, his work in Philadelphia was carried on in connection with his Washington duties; but in 1895 he moved to Philadelphia, intending to make that his future home and his duties at the University of Pennsylvania his life work.

Within a year, however, he was called to do bigger things—he was invited to take charge of the New York Public Library. Simply stated, this sounds and means little; actually, the magnitude of the undertaking was stupendous. It meant the consolidation of the Astor, Lenox, Tilden and other great libraries into one, that one to be equal in magnitude and superior in arrangement to any library anywhere in the world. It meant working out a general scheme for a library whose initial number of books aggregated over 350,000 volumes, and whose ultimate number was to be "on a footing with the British Museum, with nearly two million books, or the Bibliothèque Nationale of France, with its three million." It meant also planning the buildings and overseeing, in a general way, their construction.

In 1905 "he was engaged by the corporation of the proposed Peter Bent Brigham Hospital in Boston to lay out . . . plans for suitable buildings for a hospital to accommodate at least two hundred beds, and a general scheme of organization, and details regarding its alliance with Harvard University." This work required three years, and was supplementary to that in connection with the New York library.

When the Civil War broke out, Dr. Billings was demonstrator of anatomy in the Medical College of Ohio, and was beginning to get considerable surgical practice. As his biographer says, "Billings would no doubt have become one of the leading surgeons of Cincinnati, and of the United States"; but his career, like that of thousands of others, was changed by the war. He joined the medical corps of the U. S. Army, with which he remained for over thirty years. About a third of the book is devoted to an account of his experience and work in the army. His war journals follow Grant's campaign of 1864 very closely and minutely. The finished account of the Battle of the Wilderness on pages 128 and 129 (from McParlin's report, but probably written by Billings himself) may have given some points to the later historians. While his life and work in the field were, on the average, the same as that of other army surgeons, one faculty seems to have revealed itself in Dr. Billings at the very beginning—that of organization; the opportunity was construction and management of base and field hospitals.

Few men have had a greater influence on medical education in this country. As already stated, to him as much as to any one, is due the high standard adopted by Johns Hopkins at its beginning, as well as the practical and stimulating methods of instruction inaugurated by that institution. If such a man can be said to have specialized in any branch, Dr. Billings specialized in public hygiene. At least until he undertook the great work connected with the New York library, his main efforts were expended on matters of public health.

The biography of men who have done things is always instructive and informing, especially if the biography is what it should be. This is the case here. We are given a history of the development of the Surgeon-General's Library from the day of small things to what it is today; of the growth of a small alphabetical list of books to the immense "Index" of today; of the creation and demise of the National Board of Health, which was "in a sense premature, as being forced into existence through a yellow fever scare." We are given the essential facts connected with the origin and development of Johns Hopkins Hospital and Medical School, of the Laboratory of Hygiene of the University of Pennsylvania, and of the Peter Bent Brigham Hospital of Harvard. Of much public but of less medical interest is the history of the great New York Public Library. With working up of the plans of each of these institutions, Dr. Billings went to Europe to study similar institutions of the Old World. This gave him a broad view of things, and introduced him to many of the principal workers there. We get little regarding these trips, except quotations from letters to Mrs. Billings and to a few friends; one wishes there could have been more, but evidently he was not a letter writer. One wishes also that there might have been more of the intimate life of the man in his home, among his close friends; but this, presumably, was impossible. Dr. Garrison has done a service to American medicine in giving us this account of one of the influential men in the medical profession of the United States. We believe we are not overstating when we say that this is one of the most valuable additions to medical biography and to American medical history that has thus far been made, if not the most valuable one.

The History of Smallpox in Australia, 1788-1908. Compiled from Various Sources by J. H. L. Cumpston, M.D., D.P.H., Director of Quarantine. Paper. Pp. 182. Melbourne: Government Printer, 1914.

Quarantine Service Publication No. 3 of the Australian Commonwealth gives a history of smallpox in that country from its settlement in 1788 to 1908. Though the records are incomplete, there is in this publication much detailed information gathered and compiled from various sources. There are recorded imperfect histories of three distinct and fatal epidemics of the disease among the aborigines since the opening of the country, and eleven epidemics among the population in the settlements. The latter epidemics have been small, the largest including only about 154 cases, and the total number of cases down to 1908 amounting to only about 500. In almost all instances the disease has been introduced by vessels plying at the various ports, though it has been endemic to a slight extent since its first introduction. The disease has been introduced 182 times in a period of eighty years. It has shown a very short range of infection, as a rule, in Australia, and actual personal contact is ordinarily necessary for infection. Interesting is the suggestion of Dr. McCrae of the Central Health Board of Victoria, in 1872, of the agency of flies in the spread of smallpox. On account of the small number of cases, the factor of exhaustion of susceptible material has not applied to Australia, and vaccination, even at present, is not compulsory in all of the states, some having practically no legislation with reference to this measure. The history of such legislation is given in the report. Estimates made from the imperfect data available indicate that in the last fifty years about 32 per cent. of the population have been vaccinated. The effects of vaccination in the epidemics recorded are in line with the history of vaccination in other countries, the vastly largest percentage of the mortality, which has not been great, occurring among the unvaccinated, next among those not revaccinated within the recognized period of immunity, and least among the recently vaccinated or those revaccinated within a proper interval before exposure. Among the latter it is said that almost permanent immunity is attained. The report does not include the history of the last epidemic in 1913, which was, like the others, shipborne into the country.

An Introduction to the Study of Color Vision. By J. Herbert Parsons, D.Sc., F.R.C.S., Ophthalmic Surgeon, University College Hospital, London. Cloth. Price, $3.75 net. Pp. 308, with 75 illustrations. New York: G. P. Putnam's Sons, 1915.

In this book, which is the most recently published treatise on the subject of color vision, the author wisely deals with facts first and theories later. In a natural order of procedure, Part I of the book describes the chief facts of normal color vision from its physical, anatomic and psychologic bases. Then follows the spectrum as seen both by the light-adapted and the dark-adapted eye, and the various phenomena and color effects on the retina. The last section of Part I considers the evolution of color vision, including the development of color vision in the child, and containing also an interesting chapter on comparative psychology of color vision. Part II takes up the chief facts of color blindness, with brief historical references. Part III is devoted entirely to the various theories of color vision. Realizing that no theory has ever been advanced which explains all the facts of this department of science, the author takes up briefly the theories which still have followers, pointing out the strong as well as the weak features of the different ones. Researches based upon the Young-Helmholtz and the Hering theories are described. In conclusion there is briefly outlined a description of seven of the most recently advanced theories of color vision. The book is a valuable contribution to the literature of color vision, particularly because the author treats of the various theories from an absolutely unbiased point of view, which cannot be said of the majority of writers on this subject.

Clinical Diagnosis. A Manual of Laboratory Methods. By James Campbell Todd, Ph.B., M.D., Professor of Pathology, University of Colorado. Third edition. Cloth. Price, $2.50 net. Pp. 585, with 179 illustrations. Philadelphia: W. B. Saunders Company, 1914.

The scope of this book has been enlarged and its size increased in order to permit the inclusion of many important advances in laboratory technic. Each section has been carefully revised, additions being especially made to those on sputum, urine and animal parasites. Among the newer methods noted are Weisz' test for urochromogen, Ponder's stain for diphtheria bacilli and the urease method for urea. A new chapter on serodiagnostic methods has been added by Dr. Ross C. Whitman. While this manual is not so complete as many of the works on clinical diagnosis, it is sufficiently comprehensive for the student (for whom it is intended) and for the general worker who may wish to become familiar with the more common as well as with the newer methods of laboratory examination. The text is clear and concise. The illustrations are adequate and instructive.

Lead Poisoning from the Industrial, Medical and Social Points of View. Lectures Delivered at the Royal Institute of Public Health. By Sir Thomas Oliver, M.A., M.D., M.R.C.P., Attending Physician, Royal Victoria Infirmary. Cloth. Price, $2. Pp. 294. New York: Paul B. Hoeber, 1914.

This book consists of lectures delivered by Dr. Oliver at the Royal Institute of Public Health, London. The author has had a wide experience and has made a special study of lead poisoning. His book will be of value to all interested in the subject. In the appendix are published the factory and work shop orders, as used in England, relating to lead poisoning.

Medicolegal

Malpractice in Treatment of Oblique Fracture of Clavicle—Care Required—Amount of Damages

(Craghead vs. McCullough (Colo.), 146 Pac. R. 235)

The Supreme Court of Colorado affirms a judgment in favor of the plaintiff for $650 damages for alleged malpractice in the treatment of an oblique fracture of the clavicle. The court says that, briefly, the defendant's treatment consisted in putting the ends of the bone in place and bandaging and holding the arm and shoulder in a position with the aid of a fulcrum, the object of this treatment being to prevent overlapping. All the surgeons called as witnesses who testified on the subject stated that the method employed was the usual and proper one to treat such a fracture. Employing the method to reduce a fracture generally recognized by surgeons as proper is not negligence. But there was substantial testimony from which to deduce one of two conclusions; either the defendant did not place the fragments in proper place in the first instance, or, if he did, he failed to exercise ordinary care from time to time to ascertain whether they remained in place and in keeping them in proper position. In the absence of a special contract, the law implies that a surgeon employed to treat an injury contracts with his patient that he will exercise reasonable and ordinary care to accomplish the purpose for which he is employed. He does not warrant a cure and is not responsible for want of success, unless it results from a failure to exercise ordinary care, or from want of ordinary skill. True, as stated in many well-considered cases, the failure to exercise ordinary care in treating a fracture is not established by proof of the result alone, but must be shown by other evidence. The original verdict was for $1,000, but, while a motion for a new trial was pending, the plaintiff filed a remittitur of $350. The court does not think that the verdict was excessive. That an operation was necessary in order to relieve the plaintiff from the condition he was in as the result of the overlapping of the fracture must be conceded. The surgeon who performed the operation testified that he made an incision down to the bone, and then by the use of instruments refractured it where the union had taken place, made a hole in each fragment, and inserted a silver wire, and wired the bones together so that they would remain in place and prevent overlapping until a new union was effected. Considering the pain and suffering, expense, and loss of time this operation necessarily entailed, and also the fact that there was sufficient testimony from which it could be inferred that the defendant had not exercised the degree of care the law required in treating the fracture, it could not be said that the verdict was excessive, or in any sense the result of bias or prejudice. The trial judge did not find that the award of $1,000 was excessive. He did not direct that the verdict would be set aside unless the plaintiff consented to remit the sum of $350. The reduction was voluntary on the part of the plaintiff. The testimony was sufficient to sustain the award of the jury.

Insured Failing to Give Notice Because of Information Withheld by Physician—Having More than One Disease

(National Life Insurance Co. vs. Bean (Ga.), 84 S. E. R. 152)

The Court of Appeals of Georgia affirms a judgment for plaintiff Bean on a policy of health insurance, although he failed to give the required notice of his sickness for the alleged reason that his physician had withheld from him information with regard to it. The court says that the policy provided for the payment of an indemnity for a certain period during which the insured should be disabled by various diseases, including peritonitis. The policy also contained the stipulation: "Written notice of any injury, fatal or nonfatal, or sickness covered hereunder must be given to the company . . . within twenty days from date of accident or beginning of illness on which claim is based, unless such notice may be shown not to have been reasonably possible, and failure to give such notice shall invalidate all claims under this policy." There was evidence that the plaintiff, who was so insured, was treated by a physician for malaria resulting in peritonitis, and was confined to his room and bed, and was unable to attend to any business for about thirty days; that information as to the nature of the disease or sickness from which he suffered was withheld from him by his physician until after his recovery; that he did not know that he had an attack of peritonitis, or that this was one of the diseases covered by his policy, until he recovered sufficiently to go to his place of business and examine his policy, which was deposited there, and thereafter interviewed his physician; that written notice of his illness was not given to the insurance company within twenty days from the beginning of the illness on which his claim was based, but was given within twenty days from the date when the plaintiff discovered what had been the nature of his illness. It is held that, under the evidence and the stipulation in the policy, the policy was not, as a matter of law, forfeited because of the failure to give the notice within the time limit of twenty days, but it was for the jury to say whether the plaintiff had given the required notice as soon as reasonably possible under all the facts and circumstances. Nor did the trial judge err in failing to charge the jury that, should they find that the plaintiff had more than peritonitis at the time he had it or preexisting the peritonitis, and that such other sickness was partly the cause of the plaintiff's being confined to his home, he could not recover the indemnity. The issue was: Did the plaintiff have peritonitis? And, if so, how long was he confined to his house and continuously and wholly disabled solely by that disease, and by no other disease? Seldom does one have a serious physical ailment not complicated by other diseases or physical disturbances; and if proof of a preexisting disease, or of some concurrent ailment, would prevent recovery for disability caused solely by another disease flowing therefrom and a consequence thereof, for and during the period when the last disease was the sole then existing cause of the disability of the claimant, a policy insuring one against certain specific diseases would be worse than valueless.

Damages Recoverable—Need Not Submit to Operation for Nerve Tumors—Loss of Sexual Power

(Otos vs. Great Northern Railway Co. (Minn.), 150 N. W. R. 922)

The Supreme Court of Minnesota says that it is not disposed to further disturb the amount of a verdict in the plaintiff's favor, which was reduced by the trial court from $35,000 to $30,000. The plaintiff's left leg was amputated within 2 inches of the hip joint, so close to the body that the use of an artificial leg was impossible. There was not sufficient skin to cover the stump, and scar tissue formed. Four different operations were performed for the purpose of ingrafting skin on the stump. Several more were performed to remove cinders or to open abscesses that had formed. Two nerve tumors formed on the stump, caused by the ends of the nerves being imbedded in the scar tissue. These were intensely painful to the slightest touch, and caused intense spasms of pain on pressure or movement. From some cause, perhaps because of these tumors, the plaintiff suffered intense pain in the small of the back so that he could neither sit up nor use a crutch.

The defendant contended that there was a practical way of improving the plaintiff's condition, by removing the nerve tumors by an operation, which would remove the cause of pain in the stump and in the back, and to all intents and purposes restore the plaintiff's general health. The defendant claimed that it was the plaintiff's duty to submit to such operation, or, if he chose not to do so, the injuries which might be remedied by an operation should not be considered in measuring his damages. The court, however, is of the opinion that the plaintiff was entitled to an assessment of damages based on the condition he was in at the time of the trial. A person who sustains damage at the hands of another, whether through breach of contract or through tort (wrongful act), is required to take all reasonable measures to reduce his damage, but the court cannot carry this doctrine to the extent of holding that this plaintiff, who had already submitted to an amputation which a great proportion of men do not survive, and a lot of lesser operations, was under any obligation to submit to another surgical operation of the character described in pursuit of an uncertain prospect of lessening his injury and his damage.

There was some evidence that the plaintiff's injury had caused permanent impotence, due to the interruption of the course of certain nerves. Injury of this sort is easy to feign or exaggerate and hard to disprove. Temporary loss of sexual power is the usual concomitant of almost every severe injury or illness, and cannot usually be considered as a distinct element of damage. At the same time, when there is tangible proof that by reason of direct injury to the generative organs or the nerves that prompt their action, impotence results, no good reason exists why this element may not be considered. When the proof rests on opinion evidence, it should be closely scrutinized, but it cannot, in all cases, be rejected entirely. In this case there was evidence of injury to the pudic nerve, also that every known test indicated present impotence, and expert evidence, based on this alleged organic injury, that impotence would be permanent. The court cannot say as a matter of law that this evidence should have been wholly disregarded. However, it seems to the court that this verdict could be sustained without resting largely on this claim. Aside from this element of damage, the case was in no sense parallel to those involving the mere loss of one leg.

Liability of Sanatorium for Negligence of Nurse

(Pensacola Sanitarium vs. Wilkins (Fla.), 67 So. R. 124)

The Supreme Court of Florida affirms a judgment in favor of plaintiff Wilkins for $1,000 damages for a burn on his leg caused by a hot water bottle having been left in the bed where he was a patient in the sanatorium. The court holds that, as the damages were claimed for actual negligence of a nurse who was an employee of the private corporation for profit, there was no error in excluding evidence as to the competency of the nurse, or in refusing to charge the jury as to the care used in selecting nurses at the sanatorium. In other words, where, in an action for personal injuries, the damages claimed are solely for alleged actual negligence, it is not error to exclude evidence as to the competency of the negligent employee.

Money Paid for License Fee Not Recoverable

(Longstaff vs. State (S. D.), 150 N. W. R. 1100)

The Supreme Court of South Dakota sustains a demurrer to the complaint in this action, brought by the assignee of the claim of one Doran to recover from the state $500, with interest. The court says that the complaint alleged, among other things, the conviction of Doran for the violation of the statute against practicing medicine as an itinerant physician without first having obtained a license, the imposition of sentence pursuant thereto, and his appeal therefrom. That immediately after the entry of said sentence Doran, being threatened by the State Board of Medical Examiners with further prosecutions on their complaint for past violations of said law, and being by reason of said prosecution and threats of the board unable to further practice his profession in the state as his only means of livelihood pending the appeal of said case in the Supreme Court, did pay to the state of South Dakota, namely, the board of medical examiners of said state, under and in pursuance of Chapter 176 of the session laws of 1903, under compulsion and protesting the same, $500, which was the sum in the law named and designated as the license fee of itinerant physicians. That said sum was paid to the state and its said board on the express agreement, understanding and condition that it should be held subject to the decision of the Supreme Court in said appeal, wherein it was claimed by Doran that the law requiring such payment was unconstitutional and void. That thereafter the Supreme Court, in State vs. Doran, 28 S. D. 486, held that said Chapter 176, so far as it required the payment of said license fee, was unconstitutional and void, and that the state had no power or legal right thereunder to require the payment of the same. It was contended by the plaintiff that the agreement with the board of medical examiners set forth in the complaint was valid, and that the payment of the fee by Doran was involuntary. But the court is of the opinion that the plaintiff was wrong in each of his contentions. The agreement alleged to have been made by the board of medical examiners was clearly beyond its authority. The board had no authority, express or implied, to make a binding agreement such as alleged; not only that, but it is expressly provided by law that all moneys received by the board shall be paid to the state treasurer and credited to the general fund. After the money has been so deposited, it can only be withdrawn by warrant pursuant to an appropriation.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

American Academy of Medicine, San Francisco, June 25-28.
American Climatological and Clin. Association, San Francisco, June 18-19.
American Laryngological Association, Niagara Falls, June 1-3.
American Laryn., Rhin. and Otol. Society, Chicago, June 15-16.
American Ophthalmological Society, New London, Conn., July 6-7.
American Otological Society, Niagara Falls, June 3-4.
American Pediatric Society, Lakewood, N. J., May 25-27.
American Society of Tropical Medicine, San Francisco, June 14-16.
American Surgical Association, Rochester, Minn., June 9-11.
Arizona Medical Association, Prescott, June 17-18.
Maine Medical Association, Poland Springs, June 9-10.
Massachusetts Medical Society, Boston, June 8-9.
Montana State Medical Association, Bozeman, July 14-15.
Nat'l Assn. for the Study and Prev. of Tuberculosis, Seattle, June 14-16.
Nevada State Medical Association, Reno, June 17-19.
New Jersey Medical Society, Spring Lake, June 22-24.
North Carolina State Medical Society, Greensboro, June 16.
Rhode Island Medical Society, Providence, June 3.

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Ninth Annual Meeting, held at Buffalo, April 27-29, 1915

The President, DR. GROVER W. WENDE, in the Chair

Intestinal Stasis

DR. ALLEN A. JONES, Buffalo: Acute stasis results only when intestinal obstruction is positive and is brought about by a pathologic state causing blocking or constriction, or by a complete intestinal paralysis from some interference with the neuromuscular function of the bowel. Chronic stasis may be caused by adhesions from localized peritonitis due to gallbladder or gallduct disease, pancreatic or retroperitoneal disease, appendicitis, diverticulitis, ulcers, carcinoma or pelvic disease, veils or membranes in the ileocecal region, intestinal displacement, atony, pressure on the intestine, hernia, cicatrices, enteroliths, foreign bodies or fecal impaction and spasm, as in dynamic ileus. Postoperative intestinal stasis may occur after extensive resections, with the vicious circle, in spreading peritonitis, after ileosigmoidostomy, from the development of kinks, in cases of paralysis of the bowel, and after cautery resections from dense adhesions surrounding pockets of pus. How does enteroptosis affect or deplete health? 1. By its toxic effects. 2. By interfering with the splanchnic circulation. 3. By exciting unhealthy conditions of the colonic mucosa. 4. By its possible effect in causing appendicitis and pelvic displacement. 5. By its drag on the mesentery, causing backache and misery. 6. By its effects on the mind, the vasomotor circulation and the whole nervous system. 7. By its induction of premature old age because of its interference with the nutrition of the heart, the arteries and body musculature.

Intestinal Prolapse and Adhesions

DR. HENRY W. BETTMANN, Cincinnati: A certain hereditary predisposition does exist. Constitutional debility and maldevelopment play important rôles. Pregnancy, emaciation and improper dress are often the deciding influences. The early symptoms are those of atonic dyspepsia, although the prolapsed viscera may functionate perfectly and all the symptoms be absent. There is nothing at all characteristic about the early symptoms. In more advanced cases, disturbances of motor functions, headache, constipation, dragging, backache and emaciation are common. The third stage is reached when the nervous system yields and a state of neurasthenia ensues. Especial attention must be paid to neurotic children, particularly to those presenting the habitus enteropticus. Physical exercises and correct gymnastics are exceedingly valuable. Dress reform, the care of convalescence, especially when emaciation is present, and the proper attention to the abdominal walls after childbirth are all of the highest importance. General hygienic measures combined with an appropriate diet are often sufficient. Many patients are made permanently neurotic by having their attention directed too persistently to the position of their abdominal organs. A well-fitting abdominal bandage is exceedingly helpful in many cases. It is certainly not indicated in every case. In the young, corrective gymnastics are to be preferred. Massage is often helpful. As to the theory of colon stasis and alimentary toxemia, it would seem to a critical mind that the burden of proof should rest strongly on those who would have us believe that toxic materials are actually absorbed in damaging quantities from the colon.

Organic Obstruction of the Ileum as a Cause of Gastric Disturbance

DR. GRAHAM CHAMBERS, Toronto: The close anatomic and physiologic relationship between the stomach and the small intestine has an important bearing on the etiology of ileal stasis, for one should expect that both viscera would be affected alike by nervous disturbances. In marked cases of ileal stasis of organic origin in the lower end of the ileum characterized by high peristalsis of the ileum and impaction of the barium in the ileum against the cecum, the latter is frequently found empty, although there is frequently barium in the splenic flexure of the colon and rectum. It would appear from this that the high peristalsis in the ileum in some way brings about excessive peristalsis with the cecum. In organic obstruction of the pylorus, in the early stage at least, the same phenomena are observed. Spasm of the pylorus is a very common cause of gastric stasis. The characteristics of the pain in the region of the stomach in ileal stasis due to organic obstruction are very variable. This is probably dependent partly on the degree of stasis and partly on the nervous state of the patient. In some cases, the time of appearing after eating and the intensity and nature resemble similar characters of the pain observed in gastric or duodenal ulcer. This feature often renders it difficult to determine whether the particular state is one of intestinal stasis alone or intestinal stasis associated with peptic ulcer. Symptoms referred to the stomach in ileal stasis of organic origin are determined to a considerable extent by the associated conditions or complications. Some of the latter are diseases of the stomach itself, such as peptic ulcer; others are diseases of the adjacent organs, such as duodenal ulcers and gallstones, which are prone to produce gastric symptoms; and others again are disturbances of the nervous system, such as neurasthenia and hysteria. Any one of these may be characterized by a group of gastric symptoms.

DISCUSSION ON PAPERS OF DRS. JONES, BETTMANN AND CHAMBERS

DR. L. T. LE WALD, New York: If one undertakes to make a roentgenologic examination of the gastro-intestinal tract, he must start at the mouth and finish at the anus, and not be satisfied by giving a bismuth injection of the colon and drawing conclusions from it. I have known of at least two cases in which the colon was not the seat of the trouble. In one case, in which an ileosigmoidostomy was done, the stomach was not examined at all; but while the patient was relieved temporarily of the gastric trouble, roentgenoscopy disclosed a serious obstruction at the outlet of the stomach. I believe a large majority of these cases have a congenital rather than an acquired element.

Dr. Robert T. Morris, New York: Dr. Jones said that most of these patients suffering from chronic intestinal stasis are amenable to medical treatment. He is quite right. There is too much surgery, but also too little surgery. Half of these patients come under the observation of internists who want to give them something. If the diagnosis in these cases is made early and proper medical treatment is resorted to promptly, very little surgery will be required.

Dr. J. T. Case, Battle Creek, Mich.: Carcinoma of the colon is found particularly in two places—in the pelvic colon and in the cecum. We also find stasis in the pelvic colon and cecum, and sometimes in the right half of the colon.

The Infected Colon and Its Surgical Therapy

Dr. John W. Draper and Dr. Jerome M. Lynch, New York: From a surgical standpoint, it is necessary to include under autointoxication not alone the lesions caused by substances formed through the vital processes of the organism, which is Coombe's conception, but also those arising from destructive infection of the bowel wall, which in a sense is not true autointoxication, but essentially a surgical disease. Surgeons can at present do no better than to find a means to prevent the absorption of the toxins from a given part of the bowel, however these poisons may have been created. Most acute and chronic purulent colonic infections are surgical from the start, and the future functional efficiency of the organ and of the individual depends on early recognition and proper treatment. Acute streptococcic embolic septic colitis, chronic torpid ulcer, slowly progressive colitis and acute diphtheroid hemorrhagic colitis yield only to surgical therapeusis. No good purpose can be served by partial removal, because the colon is, as a rule, diseased from the ileocecal valve to the anus, and no one would think of extirpation. Colonic resection, in order to succeed, must be based on surgical physiology.

What are the indications for ileostomy, what for colostomy and what for resection? Acute purulent hemorrhagic and the acute purulent inflammations of the colon differ in this respect. The first is usually a general infection of the entire colon and rectum, ending in death under ordinary treatment. There is no condition more certain to yield a brilliant result if ileostomy is done in time. Appendicostomy and cecostomy will not cure. They are inadequate, and are contraindicated because unphysiologic. Another rare condition previously treated by irrigation and medication and occasionally by colostomy is multiple polyposis. Ileostomy is the proper therapy. This lesion we believe to be secondary to an infection, and the histologic findings tend to support this view. The causative relationship of infection to polyposis is further supported by the fact that after ileostomy the inflammation subsides and the tumors disappear.

The indications for laparotomy in cases not yielding to colonic vaccines and other suitable forms of medical therapeusis are chronic intractable constipation or diarrhea plus the characteristic mental lesions, together with Roentgen-ray findings and often with slow crepitation over the cecum. Resection is indicated if a nonfused, inflamed, thickened, dilated, infected cecum, often with a mesentery studded with enlarged lymphatic glands is found. As yet we have not been able to decide positively on resection until after laparotomy. As "resection" is a vague term, not indicative of any particular technic, we have suggested the term "developmental reconstruction." This embodies the resection *en masse* at the terminal ileum, appendix, and cecocolon to the region of the middle colic artery. When completed, it places the ileocolic juncture in the position occupied before birth, which is the adult position in the dog and may be termed developmental. This operation carried a mortality which is far from negligible, and has been practiced by us only on individuals who have had years of unremitting, unavailing medical treatment and who were in every way unfit. Of a series of thirteen, 23.1 per cent. died; 46.2 per cent. were cured; 23.1 per cent. improved, and 7.7 per cent. not improved. Reaction is apt to be severe in proportion to the amount of handling in the neighborhood of the second portion of the duodenum. Reaction, if present, is apt to be delayed until after the fiftieth hour. At least one among our cured cases was unquestionably saved through the administration of autogenous vaccine.

The most careful differentiation of all colonic inflammations is necessary, not alone as to character, so far as that be possible, but particularly as to distribution. Some infections are general, others segmental; the therapeusis rests largely on this, an ileostomy being indicated for the one, a colostomy or a developmental reconstruction for the other. Many segmental infections, unless surgically treated, even though relieved and apparently cured by medical treatment, invariably relapse. Cessation of symptoms for a time does not mean cure. Such infections almost invariably end in stricture, so its preventive treatment is the early recognition and surgical treatment of the cause. Whatever the nature of the primary infection, it always becomes mixed after a short time. This principle underlies the therapy of the colon just as thoroughly as it does that of the lungs.

DISCUSSION

Dr. Martin B. Tinker, Ithaca, N. Y.: The trend is decidedly against a complete colectomy among the progressive surgeons of the country. Ileosigmoidostomy has been discarded by the progressive surgeons of this country. On the other hand, there are a number of men who have taken up the less radical operations very similar in character to what has been described by Dr. Draper. Dr. W. J. Mayo recently advocated a very similar procedure and reported some satisfactory results. I believe this less radical procedure has a limited field of usefulness, and most of us have seen patients who are not likely to be permanently benefited by it. In many of these cases of colon infection, medical measures have been futile, and very little has been suggested in a surgical way. Ileostomy seems to be a simple thing to do, and I feel sure some of us will be inclined to try it in these desperate cases.

Dr. Jerome M. Lynch, New York: The early diagnosis of cancer is an extremely difficult problem in the hands of the best men. The Roentgen ray, except in the late cases, is not valuable. The diagnosis between diverticulitis and cancer is almost impossible in some cases. Indigestion is a very early symptom of cancer of the colon.

Early Recognition of Cancer of the Stomach

Dr. Julius Friedenwald, Baltimore: Unless the diagnosis of cancer is made early, surgical intervention can be only in the nature of relief and not of cure. The earlier the stage of the growth, the less positive are its manifestations. Even though the disease assumes considerable proportions, many of the important symptoms may be absent, so that at this stage a correct diagnosis may be impossible. Patients developing this disease are not, as a rule, chronic dyspeptics. The most important symptoms are anorexia, vomiting, pain, hematemesis, melena and occult blood in the stools; dysphagia; loss of flesh; the presence of a palpable tumor; dilatation of the stomach; ascites and edema of the extremities; certain roentgenologic findings and serodiagnosis by the Abderhalden method. Vomiting is of frequent occurrence in gastric cancer. Pain was present in 93.1 per cent. of 1,000 cases, and extended more or less over the entire abdomen. Hematemesis occurred in 22 per cent. of cases; in 87 per cent. the hemorrhages were multiple, and in 10 single. Melena appeared in 18 per cent. of the cases. Occult blood in the stools was present in 64.2 per cent. Dysphagia existed in 6 per cent. of the cases. Loss of flesh is a sign of considerable value and occurred in 98 per cent. of the cases, the loss of flesh varying from 5 to 78 pounds. In only 30 per cent. could a mass be palpated in six months after the appearance of symptoms. Dilatation of the stomach occurred in 40 per cent. of the cases, and this condition, when present early, is of great diagnostic value. Ascites and edema of the extremities appeared in 21 per cent. of the cases.

What Stomach Symptoms Justify Surgical Intervention?

Dr. Martin B. Tinker, Ithaca: A reduction of the present high death rate from stomach cancer and stomach or duodenal ulcer can be accomplished only when agreement can be reached between internists and surgeons as to indications for operation. Frequently, at the onset of the trouble, the symptoms are clear and distinctive, while later the clinical picture is obscure because of the symptoms resulting from adhesions, extensive involvement of surrounding organs and impairment of general health. Common to all the chronic dyspeptic troubles, such as gallstones, appendicitis and various intra-abdominal forms of cancer, are complaints of pain, vomiting, gas and distention, burning sensations and eructation of sour or bitter material. In a number of these cases it may be possible to get the early history of pain localized in the region of the appendix or under the right costal border, more or less distinctive of appendix or bile tract involvement, while in the stomach or duodenum cases the pain is more commonly located in the epigastrium. Pain is, perhaps, the earliest and most persistent of symptoms.

Examination of the abdomen early in the disease may give valuable information. Tenderness on pressure over the ulcer, usually in the epigastrium, in the vicinity of the pylorus, when present, is very suggestive, although not nearly so constant as are the points of tenderness and pain over the appendix and gallbladder. Later on, visible peristalsis may show beginning of obstruction from developing cancer or adhesions about chronic ulcer. The cases of cancer in which definite tumor is present, Czerny many years ago pronounced inoperable; and this still holds good in the great majority of cases, but some small movable tumors are readily operable and occasionally a mass of adhesions about chronic ulcer may be mistaken for cancer and justify exploration in doubtful cases. The general appearance is also suggestive. Although there is general agreement that we cannot depend on gastric contents analysis for either a positive or a negative diagnosis, it seems to deserve a place among methods of investigation. There is a constantly growing belief in the value of roentgenologic study of the stomach. The Roentgen ray gives accurate information regarding the size, position and shape of the stomach, the acidity of peristalsis and the time of emptying.

In a series of twenty-nine personal cases in which symptoms referred to the stomach were the most prominent features, the following conditions were found: cancer of the stomach, 4; ulcer of the stomach, 2; cancer of the duodenum, third part, 1; ulcer of the duodenum, 9; perforating ulcer of the duodenum, 1; cancer of the transverse colon, near stomach, 2; chronic inflammation of the bile tract, 3; chronic appendicitis, 3; tuberculosis of the cecum, 1; movable kidney, 3. In one of the movable kidney cases the displaced kidney was adherent directly over the duodenum. While it may be impossible to arrive at a positive diagnosis in many of these cases, it is almost always possible to say that serious trouble is present inside the abdomen, and that the symptoms are of sufficient gravity to justify surgical intervention. Almost always it will be possible to determine with some degree of certainty whether the stomach and duodenum are at fault or whether the stomach symptoms are caused by lesions elsewhere in the abdomen. All modern means of diagnosis should be employed and the lesion located as definitely as possible so that in the majority of cases the operation is not really exploratory; but we may be able to attck the lesion causing the symptoms without undue handling of the intestines or manipulation inside the abdominal cavity.

DISCUSSION

Dr. L. T. Le Wald, New York: There is one important point in the diagnosis of gastric and duodenal ulcer which should be considered, and that is the question of syphilitic lesions. We have had eight cases at St. Luke's Hospital in the last two years which ordinarily would have been considered ulcer or carcinoma. Dr. Meyer reported a case in which he had resected for a supposed carcinoma at the pyloric end of the stomach. The patient succumbed to the operation. A microscopic examination showed it not to be carcinoma, but a syphilitic lesion of the stomach. In another case a fatal hemorrhage of the stomach ensued. The case was supposed to be one of ulcer, but it proved to be a syphilitic infiltration of the stomach.

Dr. Robert T. Morris, New York: During the past two months I have seen operation performed in two cases by famous surgeons for gastric symptoms warranting operation, but nothing was found. These patients continued to suffer and were examined by an ophthalmologist and found to have eye strain. One patient improved so rapidly that evidently the cause of her trouble was eye strain. While the percentage is not large, a definite percentage of cases with gastric symptoms are cases of eye muscle imbalance, and we must get negative or positive testimony in these cases.

Dr. Henry L. Elsner, Syracuse: Charges are brought against the internist that these cases do not reach the surgeon soon enough. A very important reason for not delivering these cases to our surgical friends is the fact that they do not come to us. The stomach is exceedingly tolerant. A man who has a slight indigestion does not promptly seek a physician. When these patients do come, over 90 per cent. of them already have a palpable tumor. They are easy of diagnosis. Careful examination proves that they have metastases of the glands. We do not need the Roentgen ray in such conditions.

Dr. James Pilcher, Brooklyn: Cancer of the stomach and cancer of the breast occurring in young people have a greater malignancy usually than when occurring in older people, for the reason that as a person progresses in life and reaches the age of 45, from then on the lymphatics become more or less sclerotic and do not carry metastases so fast. The older the patient is, the better chance the surgeon has for effecting a cure.

Dr. Charles G. Stockton, Buffalo: When a patient represents the features so clearly described by Dr. Elsner, he is often beyond the early stage of cancer. When a man of middle age has loss of appetite, sudden disturbance of the function of the stomach for the first time in his life, and is losing weight, I would not hesitate to say that that man should submit to an exploratory operation. I feel very often that when that condition is reached, the cancer is so far advanced that our surgical friends criticize us. I believe that adenocarcinoma starting in the submucosa goes on silently, metastases begin to develop and a state of affairs is produced which we cannot recognize definitely by the means we now have. In that class of cases, the early diagnosis of carcinoma of the stomach is an accident. Occasionally we make the diagnosis, but very often we do not.

Dr. Parker Syms, New York: The early diagnosis of carcinoma of the stomach is almost impossible, and Dr. Stockton has pointed out that it is made accidentally. The results in operating on carcinoma depend on an early attack, and if we are to assume that the early diagnosis of carcinoma of the stomach deliberately made is almost impossible, certainly deliberate surgery for the cure of this disease must fail very largely.

Dr. Allen A. Jones, Buffalo: A very useful and simple procedure in diagnosis in gastric conditions is the thread test of Einhorn.

The Rôle of the Superior Mesenteric Vessels in Abdominal Disease

Dr. J. N. Hall, Denver: I have seen several cases of marked chronic dilatation of the upper portion of the duodenum in connection with narrowing below from the pressure of the superior mesenteric vessels, but my diagnosis in these cases has generally been that of pyloric or duodenal ulcer. One such obstruction was corrected by the performance of a duodenoduodenostomy by Dr. Freeman. The exact diagnosis is less important than a realization that a mechanical type of duodenal obstruction exists, and demands surgical relief. The exact method of relief concerns the surgeon rather than the internist. The statement of Spence and Graham that possibly the cyclic vomiting of children and the so-called hysterical vomiting may at times be due to chronic gastromesenteric ileus deserves our closest attention.

Similar obstruction may occur below the duodenum, as in a case in which operation was performed by Dr. Freeman. Under my diagnosis of partial obstruction in the middle portion of the small bowel, he had a gastro-enterostomy performed for duodenal ulcer four years before. Several feet of the upper small intestine were much distended, while below a point at which the ileum was compressed under the root of the mesentery, and the superior mesenteric vessels, the intestine was empty. The bowel was practically uninjured. The anastomotic opening was patent; the induration about the duodenal ulcer had disappeared, and everything in this connection seemed entirely normal. The appendix was removed, the adhesion separated, the patient instructed to lie in the right prone position, and a normal convalescence followed.

Immunization Against Measles

Dr. Charles Herrman, New York: Infants under 5 months of age are relatively immune, and in exceptional cases in which they are infected with the disease, it appears in a mild and atypical form. One attack of measles usually protects for life. The nasal discharge contains the virus twenty-four hours before the appearance of the eruption. Having convinced myself that infants under 5 months of age are relatively immune, I obtained the consent of a mother to inoculate her infant then 4 months old. It seems logical to assume that as the infant at that age is not absolutely immune, direct inoculation will convert a temporary into a more or less permanent immunity. At no time did the child present any evidence of injury, and I then proceeded to inoculate others. The material for inoculation was obtained from otherwise healthy children, taken twenty-four hours before the eruption of the measles appears. A small quantity of the mucus from the nose is collected on swabs of cotton. Only perfectly healthy infants under 5 months of age are inoculated. The swab is applied gently to the nasal mucous membrane. Forty infants were thus inoculated. The majority showed no distinct reaction, fifteen had a slight rise of temperature, and in a few instances a small number of spots were noted on the face or body. Of the forty patients, four over 1 year of age had come in contact with cases of measles and had not contracted the disease.

Pyelitis: Its Clinical Significance

Dr. Edward J. Wynkoop, Syracuse: In girls the infection may gain entrance through the urethra more often than in boys, or it may be carried from the intestinal tract. It may occur as a complication of some other condition, or it may be an independent disease. The bladder need not necessarily be infected. The classical symptoms of chill, fever and pain in the kidneys may not be present. In relapsing cases the chill may not be repeated. In any case with irregular fever, intestinal symptoms, frequent micturition, and anemia, it is well to bear in mind the possibility of pyelitis. In examining the urine a twenty-four hour specimen only should be taken. Symptoms referable to the urinary tract and anemia should always make one suspicious of pyelitis. This is a condition more frequent than we have believed, and should be borne in mind as not every illness in children is to be attributed to the intestinal tract. In the treatment of pyelitis, I have found hexamethylenamin and potassium citrate very valuable. My preference is for the use of potassium citrate. Plenty of water and attention to hygienic rules are a great help. Vaccines have not proved as effective as we might have expected. The treatment should be persisted in as long as pus is found in the urine, even though the symptoms have disappeared.

DISCUSSION

Dr. W. L. Carr, New York: In most instances, pyelitis is an infection of the colon bacillus type; but the peculiarity of the attack requires some consideration, as it does not always seem to be associated with intestinal disturbances that attract attention, nor does it always show itself after a colitis. Many of the cases are seen after influenza, and yet cultures of the urine show pure colon infection. While there is a preponderance of cases among females, there are more cases among the males than has hitherto been supposed. As the condition in the male can hardly result from an ascending infection, it is well to study more carefully the influence of the blood-stream infection. During the acute attack I use irrigations and such laxatives as are called for. The elimination of milk from the diet, if there is constipation or foul stools, is most important, and the administration of castor oil at such a time is of unquestionable benefit.

Basal Celled Epithelioma

Dr. Robert F. Barber, Brooklyn: Of 200 specimens examined, fourteen showed epithelial pearls and only two epithelial bridges. They are said to spring from the germinal cells of the skin, and are described as having different potentials. These are called the cellular potential, evident in the various types of tumors, glandular potential, accounting for the cystic tumors, and the pigment potential manifested by the pigment in growths. The types are described as (1) simplest—a nest of cells in the derma; (2) alveolar, with a small amount of stroma; (3) scirrhous, with a large amount of stroma, and (4) adenomatous, with glands and cysts. The increase in the connective tissue is interpreted as evidence of inflammation. Previous lesions were called pimples in 44, warts in 5, and burn in 1, and the pressure of eye-glasses in 1. The frequency in these cases is 100 in women and 100 in men. The average age was 56 years. There were 2 cases in the third decade and 4 in the fourth decade. The average preoperative duration was six years, the greatest being twenty-eight years and twenty-five years, respectively, the shortest six weeks. The mean size of the lesion was 3 cm., the largest 8 cm.; the smallest under 1 cm.

Cancer of the Bladder

Dr. J. Bentley Squier, New York: Operative measures for cancer of the bladder are palliative, excision and resection. It is essential to remove at times ureteral vesical opening and internal meatus, and in the event of muscular invasion of the bladder by the tumor, to remove the glands as well. The vesical neck should not be resected. It is very difficult to diagnose cancer of the bladder through a cystoscope, and often impossible after the removal of a piece of the tumor. Fulguration is a method of treatment that should be resorted to in cases of benign growths.

Hydrocephalus: Treatment by Cisterna-Sinus Drainage

Dr. Irving S. Haynes, New York: The injection of phenolsulphonphthalein provides a means of determining something in reference to the type of case with which one is dealing and whether operation promises hope for alleviation of the condition, and also the type of operation to be performed. I have operated on twelve patients; all but two were totally blind. The only logical means of draining the cisterna is into the blood stream. This I effected by means of a silver cannula with a short and a long arm at right angles with each other. While I have been able by this method to establish drainage and in some cases to improve somewhat the contour of the child's head and to prolong life, I am by no means enthusiastic, because there seems to be little or no improvement in the mental or physical condition of these children.

DISCUSSION

Dr. G. R. Pisek, New York: There are certain types of hydrocephalus, some operable and others not. If it were possible to get the child before he is damaged mentally, or after an attack of acute meningitis when hydrocephalus develops as a complication, this operation may offer hope of accomplishing something. The technic is not simple and requires a surgeon skilled in brain surgery.

Dr. Charles W. Hennington, Rochester: The operation described by Dr. Haynes seems to be in line with what we have found in laboratory work in hydrocephalus. It seems that in this operation we have the solution of the problem as to whether or not the dura and arachnoid should be punctured from the reverse side. I agree with Dr. Pisek that if these cases are brought early for treatment and the phenolsulphonphthalein test employed to determine the type of obstruction, some good results may be obtained.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held April 28, 1915

The President, DR. E. E. MONTGOMERY, in the Chair

SYMPOSIUM ON EMERGENCY TREATMENT

Convulsions

DR. GEORGE E. PRICE: Convulsions divide themselves naturally into two groups: functional and organic. While the same treatment is applicable to the majority, no one treatment will apply to all. A diagnosis, or at least an approximate diagnosis is, therefore the first essential. There are certain practical aids to diagnosis which can be obtained quickly: approximate age, general appearance of the patient, character of the convulsion, presence or absence of consciousness, of distinctive odors, such as in uremia or the odor of alcoholic excess; character of the breathing, history of prior attacks, history of traumatism, overindulgence in alcohol, and the taking of poison. When called to attend an infant in convulsions, if the "pride of the family" is not already in a hot bath, the physician should at once place the child in a warm bath or pack with an ice-cap to the head. If this does not suffice, chloroform will terminate the convulsion and bring about relaxation, which allows emptying of the bowel by a simple enema. This can be followed by the rectal administration of chloral and bromid in dose suited to the age of the patient, and as soon as the child becomes conscious, a purge such as calomel, followed by castor oil or rhubarb, should be given by the mouth. The hot bath is contraindicated if the fever is high or there are signs of lung involvement. Excellent results have been reported by lumbar puncture, which has been recommended in severe cases. Holt advocates the use of oxygen, and Sanders of morphin in place of chloroform. Oxygen is not readily procured, and I should certainly hesitate to use morphin with a small child unless every other measure had failed. In the epileptic attacks there should be no difficulty in diagnosis. If the patient is in bed, the matter of treatment is simplified; if on his feet, he should be lowered quickly to the floor; this is best done by approaching the patient from the rear, which I recommend as being safer for the attendant. A pillow should be slipped under the head, the clothing loosened about the neck, and a small article, such as a brush handle, slipped between the teeth to protect the tongue. In the average attack, no other measures are as a rule necessary. It is in the rapidly recurring attacks that other measures must be resorted to, as described in the treatment for infantile spasm. In the treatment of hysterical attacks, the room should be cleared as quickly as possible. Use suggestion; assure the family in the hearing of the patient that the condition is not serious and that the convulsion will soon cease. Quiet will often abate the attack. A hypodermic of water is sometimes effective. Inhalation of amyl nitrite is of value, especially as it makes a profound mental impression. In uremic convulsions, if the temperature is high, the patient should be placed in bed, wrapped in a sheet wrung out of water at from 70 to 80 F., and this covered by a dry blanket. If the temperature is not high, we can resort at once to the hot pack at intervals, followed, if necessary, by chloroform and the other usual remedies. Morphin should not here be used. If the blood pressure is very high, nitroglycerin in 1/100-grain doses every four hours should be given. If the patient becomes cyanotic, venesection, followed by intravenous injections of normal saline, is of value. Among other forms of convulsions, we have those of tetanus and of strychnin poisoning. In tetanus, the antitetanic serum is the chief remedy; first, intraspinally; and, after the acute stage, subcutaneously. If necessary, chloroform, morphin, chloral and bromid may all be used.

Pulmonary Hemorrhage

DR. JOHN D. MCLEAN: Few pulmonary hemorrhages have a fatal termination. The patient should be in a half-reclining position to facilitate the easy expulsion of blood, and should be absolutely at rest, not even lifting the hand. A hypodermic injection of one-fourth grain of morphin quiets the heart action and calms the patient. If bleeding persists, repeat the dose in two hours. An ice-bag may be placed over the point of bleeding if known, but do not try to find it, and over the heart. One dram of the fluidextract of ergot may be given, but the dose not repeated. Cracked ice in the mouth is much to be preferred to salt, and will not tend to produce nausea. If the hemorrhage is large, salt solution by the bowels is desirable; but first decide whether the mental quiet will not be upset. After three or four days, examine the chest for lung involvement. The proper treatment at the first signs of incipient tuberculosis is more important than anything else. After all bleeding has ceased, the patient should continue to rest in bed for one week and should receive easily digested food, with the exclusion of tea, coffee and all alcoholic drinks. The bowels should be kept open with the proper laxatives.

Efficient Treatment of Urgent Cases in the Hospital Accident Ward

DR. JOHN B. ROBERTS: The administrator of anesthetics and the intern who gives first aid to injured should have had at least one year's experience in practical work, and training under a superior officer accustomed to the dangers of anesthetic agents and the surgery of accident emergencies. Burns and wounds should be sterilized, and usually are better dressed dry than wet. Patients with crushed limbs should not have a tourniquet or rubber band placed around the limb far above the injured portion, because the hemorrhage should be controlled at the region already more or less devitalized. Otherwise, the surgeon when he comes to amputate after reaction of the patient, may find gangrene of flaps occur because of unwise constriction of the limb in the effort to check hemorrhage. Gunshot wounds and abdominal injuries should not be probed, nor should enemas be given to patients with suspicious traumatisms to the abdomen, lest a ruptured intestine allow the enema to flow into the peritoneal cavity. It is possible that many fingers have been unnecessarily amputated because a young intern did not realize that a plastic operation could be used to cover bones stripped of integument. Acute abscesses and furuncles should be treated by incision to evacuate pus, but should not be plugged with gauze. Gauze does not drain pus, but becomes dry, and obstructs the opening like a cork. Therefore, it causes pain by increasing tension. Open fractures should be sterilized and treated with retentive apparatus. It is unnecessary to do spinal puncture to establish the diagnosis immediately of brain injury. Examination of the spinal fluid is frequently unnecessary, and when necessary, puncture should be done with absolute asepsis and by a trained hand, two essentials difficult to obtain in the usual accident room in charge of an inexperienced resident physician. The usual fracture of the lower end of the radius should not be treated with a splint until thorough reduction has been accomplished. Fractures of the neck of the femur should not be exposed to active manipulation in the endeavor to make a diagnosis. This is particularly true in these fractures occurring in the old, in whom impaction is frequently a blessing in disguise.

Compound Fractures

DR. GEORGE P. MULLER: Compound fractures of the skull may involve the vault or the base. Fractures of the base require no immediate treatment, except cleansing and protection of the openings leading to the cranial cavity. The ear after cleansing should be plugged with gauze. These fractures occasionally require a decompressive operation. I agree with Dr. Roberts that spinal puncture for the determination of blood in the spinal canal in such injuries is rarely necessary. In compound fractures of the vault, we usually have comminution or decompression of the fragments, and the immediate treatment differs in no way from the emergency treatment of fracture of other bones. In fractures of the lower jaw, a chin-trough and a Barton bandage and a mouth wash constitute the emergency treatment, to be followed by reduction and the use of a perfectly fitting interdental splint. In compound fractures of the long bones, we are confronted with various degrees of fracture. The most important duty of the physician first called to attend a compound fracture is simply to put a sterile dressing over the site of injury, and firmly hold it in place by a bandage. Tincture of iodin may be poured into the wound, but beyond this nothing else should be done. If shock is to be treated, the common habit of injecting strychnin is to be condemned. Morphin should be given, to be followed by heat and the head-down position, and the use of saline solution as soon as convenient. Some of these cases will come under the care of the family doctor. The patient should be anesthetized, the limb raised and the bed or table covered with the rubber sheeting, on top of which is laid a sterile sheet or towels. The entire limb is painted with tincture of iodin, and the first-aid bandage cut off and the dressing removed. The remainder of the limb is painted with iodin and the limb laid down on the sterile sheet. Foreign bodies should be removed. The wound will usually require enlarging. Small pieces of bone should be removed, but large pieces preserved. Shreds of tissue should be cut away, and the entire cavity of the wound, particularly the ends of the fragments, should be swabbed with tincture of iodin. It is essential that every open space be reached by the iodin. Provision should be made for drainage with small pieces of rubber dam. The advantage of dependent drainage should be remembered, and counter openings made where feasible. Partial closure of the wound is done, and then the fracture should be carefully and accurately reduced. The rubber dam may be removed in some cases at the end of twenty-four hours; in others it may be necessary to replace it with rubber tubes. The various fractures will be splinted in accordance with their locality. I was much impressed by a recent article advocating no splint in compound fracture of the humerus, simply slinging the wrist close up to the neck and using the weight of the elbow as an extending force during the time that daily dressings are necessary. Most compound fractures of the leg should be treated by a swinging splint, such as the Hodgson or one of its modifications. I do not like plaster of Paris as an early dressing, and never use the circular bandage unless the wound is mostly healed. If plaster of Paris is used, the cast should be covered with shellac, and after making the opening over the wound, a mixture of cotton and rubber should be packed between the plaster and the skin so as to seal off the limb from the wet dressing and discharge. It will be necessary to plate certain fractures, but that should be done only in a hospital and by one who has the proper armamentarium and technic. Drainage should be removed gradually. It is the emergency treatment that determines the amount of infection and the necessity for secondary operation.

Emergency Treatment of Ruptured Uterus and Ruptured Ectopic Pregnancy

Dr. Richard C. Norris: The obstetric emergencies—rupture of the uterus and of ectopic pregnancy—practically become a discussion of the conservative versus the radical treatment of these two conditions. Rupture of the uterus is said to occur once in from 1,000 to 4,000 labors. Untreated, the maternal mortality is 90 per cent., the infant mortality, 95 per cent. Under appropriate treatment the mortality has been reduced to 50 or 60 per cent. The violence of operative procedures when the uterus is firmly contracted, or failure to recognize an obstacle to labor, has been the cause, with one exception, of all the cases of rupture during labor that I have seen in twenty-five years of active obstetric work. When a multipara suddenly recognizes a sharp, tearing pain, and labor pains cease abruptly, accompanied by the rapid appearance of signs of hemorrhage and shock; when, after an attempt at version for a cross-birth the patient falls into collapse, the merest tyro in obstetrics should recognize at once this most serious calamity of labor. The indications are to deliver the child and control hemorrhage and prevent infection. My advice to the man of average experience with operative obstetrics is to weigh carefully the well-known danger of moving the patient to a hospital, to note the degree of shock and collapse, and if provided with the means of surgically clean work, to examine carefully to learn the location and extent of the rupture and decide whether he is capable of delivering the patient and applying the conservative treatment by tampon. This work demands the best surgical technic. Like all the emergencies in obstetrics, if the first aid fails to protect from infection, the subsequent skill called to the case may utterly fail to save the patient. Even temporary control of hemorrhage cannot be accomplished until the child is delivered. If the greater part of the fetus has escaped into the abdomen, nothing short of an abdominal operation can be considered, and treatment in the hospital offering the promptest aid is necessary. If the child is still in the uterus and the rupture has occurred during attempts at delivery, if the head is within reach, apply the forceps, perforate the skull of the dead fetus and carefully extract it. Deliver the placenta manually at once. Explore the rent carefully to avoid a complete rupture. Firmly tampon the rent after applying tincture of iodin to it; then the entire uterine cavity and vagina should be firmly plugged. If the laceration is on the anterior wall, suspect injury to the bladder. Hold the uterus anteflexed by a firm abdominal binder and pad. If the rent is on the posterior wall, retroflex the uterus and hold it thus by the pad and binder. If the bladder has been torn, introduce a self-retaining catheter. Freely stimulate the patient only after reaction has appeared, giving first and at once salt solution in moderation by hypodermoclysis and enteroclysis. The tampon in the uterine tear may remain in place not less than seventy-two hours, when it may be gently removed, and if necessary, replaced. The danger of transporting a patient with rupture of the uterus is a very grave one, and the statistics of treating incomplete rupture and small complete ruptures warrant this conservative treatment at the bedside of the patient, in clean cases treated by a clean obstetrician. Cases badly shocked show a high mortality from operation; and this conservative treatment, temporarily used, may make operation after reaction much safer in such cases. Cases that come to section may sometimes be safely treated by suture of the uterus, but usually will be more safely treated by hysterectomy, and the cervical stump should be made extraperitoneal by suture in the lower angle of the abdominal incision, if the prior handling of the case presupposes infection.

Contrasting the conservative treatment of ruptured ectopic pregnancy with the prompt surgical treatment by laparotomy, there is in my judgment less to be said in favor of the conservative treatment. A diffuse hematocele of small size that sometimes follows tubal abortion from the fifth to the seventh week in which a tubal mass cannot be felt, and the clinical signs of continued bleeding are not present, may be treated expectantly with the hope of ultimate absorption of the blood mass; but these cases are rare. Intravenous transfusion of salt solution even during transit to hospital has saved many desperate cases in my hands. A quick, clean section, exsection of the offending tube, removal of the large blood-clot by sponging, and rapid closure without drainage is the usual operation of choice. The mortality rate of ruptured ectopic pregnancy under surgical treatment varies from 3 to 4 per cent.

DISCUSSION

Dr. John C. Hirst: I think we have all seen after delivery in a rather hard long-delayed labor with or without instruments a moderate amount of postpartum hemorrhage with an immoderate amount of shock. These cases are often due to rupture and incomplete rupture of the uterus in the lower uterine segment going up behind the bladder and not through the peritoneum. The cervix is split so that you can feel the ring posteriorly and feel nothing anteriorly, and above that can be felt the contracted internal os. Here there is apt to be prolonged and fatal hemorrhage with infection of both sections of the broad ligament. A case of that kind does not, as a rule, require operation, but careful packing. Many of such cases come to us infected which could have been saved by early packing removed every twenty-four hours. Two weeks are usually sufficient to control as a case of that kind. Under such conditions I have seen two cases of rupture in the last two weeks by the immoderate use of pituitary extract in which the cervix was thought to be easily dilatable. There is a tendency to forget the expulsive action of pituitary extract, and a full dose under these circumstances is apt to produce this accident. If the symptoms of rupture justify the diagnosis of rupture before the head has passed down to the vagina, I believe such a patient is safer if moved to the hospital with the baby undelivered, as the child acts as a plug to prevent bleeding and prevents also prolapse of the intestines. In the undoubted rupture of extra-uterine pregnancy, I think we cannot emphasize too strongly the need of immediate operation in the very great majority of cases.

Dr. John M. Fisher: I am reminded of a patient with ruptured ectopic pregnancy operated on by the president of this society at the Jefferson Hospital. The woman was supposed to be in a dying condition. She was pulseless when placed on the table. She was given an intravenous injection of salt solution, and although she was gasping for breath at the time of operation, she made a rapid recovery. The case made me feel that there is no time that we may consider a patient so far gone from internal hemorrhage in ruptured ectopic gestation that operation is contraindicated. The point of importance is not the ruptured ectopic pregnancy at the time of rupture, but the making of the diagnosis after the rupture has occurred. In many cases which I have seen, diagnosis was not made previous to operation, and in reviewing the history there should have been no doubt of the condition.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

May, CXLIX, No. 5, pp. 625-780

1 *Experimental Study in Exclusion (Functional) of Pyloric Antrum. W. Bartlett, St. Louis.
2 *Gastric Headaches. W. F. Cheney, San Francisco.
3 *Use of Dahlia in Infections. J. Ruhräh, Baltimore.
4 Tuberculosis in Aged. J. B. Hawes, 2d, Boston.
5 *Generalized Telangiectasia in Association with Syphilis, with Pathologic Picture of Peripheral Vascular Sclerosis. J. H. Stokes, Ann Arbor, Mich.
6 *Use of Strychnin in Broken Cardiac Compensation. L. H. Newburgh, Boston.
7 *Multiple Neuritis as Complication or Sequel of Typhoid. T. A. Claytor, Washington, D. C.
8 Postoperative Nervous and Mental Disturbances. J. M. Aikin, Omaha, Neb.
9 Study of Urinary Nitrogen and Sulphur Partition in Case of Rheumatoid Arthritis Treated with Intravenous Injections of Radium Salts. J. Rosenbloom, Pittsburgh.
10 Case of Endocarditis of Pulmonic Valve Caused by Micrococcus Endocarditidis Rugatus. G. R. Callender, U. S. Army.
11 Herpes Zoster of Cephalic Extremity, with Special Reference to Geniculate, Auditory, Glossopharyngeal and Vagal Syndromes. N. Sharpe, New York.
12 Case of Pilous Cerebral Adiposity; New Syndrome. W. M. Kraus, New York.

1. Exclusion of Pyloric Antrum.—Bartlett has excluded the pyloric region twenty-seven times on the human subject. The first fifteen patients were operated on by transverse section of the stomach with blind closure, as first suggested by Doyen, with which no other method has been definitely proved experimentally to compare in efficiency. These experiences convinced Bartlett that the technical difficulties and dangers attendant on this procedure warranted experiments, looking toward a simpler and safer method which could guarantee the same result. The details of his experiments are given at length.

2. Gastric Headaches.—Cheney calls attention to headaches due to disturbance of the stomach; to the fact that they are not an infrequent occurrence; that they present characteristics which fairly well identify them; that it is possible by stomach investigation in these cases to prove the existence of gastric disorder, as well as by other examinations to exclude disease elsewhere; and that the headaches can be made to disappear by therapy directed to the underlying gastric disturbance. The headaches due to gastric disease are usually periodic. They repeat themselves throughout months or years. They may occur but once in a month, or once or several times in a week. Over certain periods they may become practically constant, during which periods headache is never entirely absent, though worse or better at certain times in the day. But the most common story is of sudden unexpected attacks of pain in the head, coming after days or weeks of good health. Such headaches, Cheney points out, are of variable duration, but rarely last over twenty-four hours. The patient wakens with the pain in the morning, and it grows more intense as the day goes on; or it may come on in the evening, persist during the night, and pass off after the patient rises. These headaches may be so severe and prostrating as to incapacitate the sufferer for any kind of work while they last; but more often they are not so violent as to prevent the patient from going about his usual occupation, even though he feels miserable and unfit. Sometimes nausea and vomiting accompany the pain, giving rise to the popular term "sick headaches"; but in other cases there may be no disturbance whatever of the stomach to make the digestive organs even suspected. The attack results in no disturbance of health, unless it be a sense of soreness over the scalp at the site of previous pain and a feeling of mental unclearness and confusion; but these sensations are transient and the paroxysm is usually followed by complete restoration to normal. Repetition of these attacks may go on indefinitely before the real cause is discovered.

The most common type of pain is hemicrania, though not always on the same side. The pain is described as boring in character, through one eye or temple; or it may be the entire half of the head, even back to the base and the nape of the neck, that aches and throbs while the opposite side is entirely free from discomfort and as clear as ever. But this one-sided headache is caused frequently by the autointoxication of chronic intestinal stasis; it is the characteristic type of the paroxysm known as migraine; and it sometimes occurs as a manifestation of uremia. On the other hand the headache of gastric origin often involves the whole forehead and vertex with a throbbing distention and fulness, not limited to any one area; so that it becomes absolutely impossible to construct any diagnostic chart of headaches, as has been attempted, in which certain locations of pain serve to determine infallibly the diseased organ giving rise to the pain.

In the diagnosis of gastric headaches, the history makes one only suspect, the gastric analysis makes one reasonably certain; but only after elimination of all other possible causes can this one be accepted as the basis for therapy. Laxatives alone do not remove the symptoms; a proper diet seems the essential feature in treatment, the determination of what is proper depending on investigation of the gastric functions. This arrangement of dietary with other measures to overcome gastric atony and faulty secretion are often sufficient to regulate the bowels without the addition of laxatives.

3. Use of Dahlia in Infections.—Ruhräh says that a saturated (about 4 per cent. solution) can be applied to the mucous membranes of the throat or in fact other parts of the body without producing either pain or subsequent irritation. The drug seems to penetrate only to short distances and for the deeper seated affections has no value, but for superficial involvement of the mucous membranes whether the infection is due to streptococcus or to other organisms the effect is quite striking. In some cases but little effect is noted, it is true, but in others there is marked lessening of the intensity of the inflammation and coincidently a marked lessening of the constitutional symptoms. It has the advantage over other applications in that it is not painful, does not produce irritation and is markedly antiseptic. The only disadvantage is the color, which will stain fabrics with which it comes in contact, although most of these stains can be removed if the garment is immediately washed out in cold water. For ulcerations about the mouth it may be used either by applying a saturated solution or a mouth wash varying in strength from 1:1,000 or 1:10,000 may be used. The stronger solutions need not be used very frequently. The dahlia not only kills the offending organism but it has a marked stimulating effect on the healing. Externally on skin surfaces the drug may be used with marked benefit, particularly on ulcerations.

Ruhräh has used it with remarkable benefit on vaccinations which were slow in healing, and on other abraded surfaces, especially those which are infected.

5. **Generalized Telangiectasia with Syphilis.**—Cardiovascular degenerative conditions, among which syphilis is most conspicuous in Stokes' opinion appears to stand in etiologic relation to a considerable percentage of the obscure dermatoses heretofore grouped under the meaningless terms "essential," "idiopathic," and "primary" telangiectasia. The conception of a low-grade inflammation due to definite etiologic factors, such as syphilis, lead, alcohol, hyperthyroidism, etc., forms a more substantial starting point for further study than relatively intangible angioneurotic theories of the etiology of generalized telangiectases. Much of the existing confusion in the classification of telangiectatic cutaneous lesions is ascribed to over reliance on purely clinical data, whose value as exclusive criteria in these cases is open to grave doubt.

6. **Strychnin in Broken Cardiac Compensation.**—Newburgh states positively that neither pharmacologic nor clinical evidence justifies the use of strychnin in the treatment of acute or chronic heart failure.

7. **Multiple Neuritis and Typhoid.**—Claytor collected from the literature twenty-five cases which are sufficiently fully described to be of value, which, with his own, make a series of twenty-six. Symptoms of the condition were recognized during the course of the fever in 14 instances; after the fever had subsided, in 12. The earliest was the second week of fever. It is impossible from the data to say what the longest period after apparent complete recovery at which the symptoms of neuritis first appeared, but usually it was a few days to a week after the temperature had become normal. Pain was present 17 times, absent 9 times. There was altered sensation in 19, no change in 4, and no mention of this condition was made in 3 instances. Paralysis was noted 25 times; in one case it was not mentioned. The reflexes were lost in 9, exaggerated in 4, diminished in 2, normal in 1, and not noted in 1. There were no contractures in 20, while in 6 they were noted. The cranial nerves were involved in 7, not affected in 19; the spinal in 24, not so in 2, while both were affected in 5 cases. Fourteen cases showed atrophy, 2 none; in 10 there was no mention made of the condition. The duration varied from three months to fourteen in which complete recovery occurred. Unqualified recovery took place in 11, improvement in 7, death in 2, and the result was not given in 6 cases. It must be remembered, however, that many of these reports were probably made before the final result was known, and it seems likely that quite a fair proportion of those recorded as improved ultimately recovered.

American Journal of Physiology, Baltimore

May, XXXVII, No. 2, pp. 177-451

13 *Experiments on Origin and Conduction of Cardiac Impulse. Relation of Nodal Tissue to Chronotropic Influence of Inhibitory Cardiac Nerves. B. H. Schlomovitz, J. A. E. Eyster and W. J. Meek, Madison, Wis.
14 Axial Gradients in Early Development of Starfish. C. M. Child, Chicago.
15 *Analysis of Experimental Edema in Frogs. A. R. Moore, Bryn Mawr, Pa.
16 Studies on Light Production by Luminous Bacteria. E. N. Harvey, Princeton, N. J.
17 *Cardiac Inhibition During Vomiting Evoked by Stimulation of Gastric Vagus. F. R. Miller, London, Canada.
18 Macrophages of Mammals. H. M. Evans, Washington, D. C.
19 Threshold Stimulus of Cervical Sympathetic in Relation to Vasodilatation, Vasoconstriction and Salivary Secretion. C. M. Gruber, Philadelphia.
20 Studies on Intestinal Rhythm. W. C. Alvarez, San Francisco.
21 Studies on Permeability of Internal Cytoplasm of Animal and Plant Cells. G. L. Kite, Chicago.
22 Influence of Eye-Movements in Judgments of Number. R. MacDougall, New York.
23 *Physiology of Stomach. Cause of Variations in Gastric Hunger Contractions with Age. T. L. Patterson, Baltimore.
24 *Diurnal Variations in Arterial Blood Pressure. A. W. Weysse and B. R. Lutz, Boston.
25 Conditions of Conduction of Excitation in Irritable Cells and Tissues and Especially in Nerve. R. S. Lillie, Worcester, Mass.
26 *Analysis of Nitrous Oxid for Physiologic Work. W. M. Boothby and I. Sandiford, Boston.
27 *Effect of Work on Percentage of Hemoglobin and Number of Red Corpuscles in Blood. W. N. Boothby and F. B. Berry, Boston.
28 *Determination of Circulation Rate in Man at Rest and at Work. W. M. Boothby, Boston.
29 Late Effect of Division of Pulmonary Branches of Vagus on Gaseous Metabolism, Gas Exchange and Respiratory Mechanism in Dogs. W. M. Boothby, Boston, and V. N. Shamoff, Petrograd, Russia.
30 Distension of Lungs; Its Effect on Respiration in Man and in Normal and Vagotomized Dogs. W. M. Boothby and F. B. Berry, Boston.

13. **Relation of Nodal Tissue to Cardiac Inhibition.**—This work is offered by the authors as leading confirmatory evidence to the hypothesis of chronotropic vagus action previously put forward, namely, that the vagus produces its chronotropic effect on the heart by local depression of automaticity in the nodal tissues, causing the seat of impulse initiation to undergo progressive shifting to regions of lower automaticity.

15. **Experimental Edema in Frogs.**—From the experiments described by Moore it seems clear that, in the normal frog, the water which is being continually absorbed through the skin is removed by the lymphatics and veins. When a limb is completely ligated, liquid rapidly accumulates under the ligature. This liquid is composed of transudate and of water absorbed through the skin by osmosis. Removal of the superfluous liquid is prevented because both veins and lymphatics are closed. The lymph therefore tends to become more and more dilute and the muscle correspondingly swollen with the continued absorption of water. In short, the phenomena of edema develop below a complete ligature because lymph and tissue take up water osmotically, and the avenues for its removal are blocked. In the case of edema produced by a lymphatic ligature, the lymph formed in the normal fashion is retained while the absorbed water passes into the capillaries and is removed.

17. **Cardiac Inhibition During Vomiting.**—It appears from Miller's experiments that in the dog the vomiting center when active is able to influence the cardio-inhibitory center in a powerful manner. The fall in blood pressure during vomiting in the dog, while, no doubt, in part produced by the factors effective in the cat, is materially increased by cardiac inhibition.

23. **Gastric Hunger Contractions.**—According to Patterson the variations in the gastric hunger contractions are dependent on two factors, namely: The actual age of the stomach and the rate of metabolism of the animal. The latter seems to be of the greater importance in determining the activity of the gastric motor mechanism.

24. **Diurnal Variations in Arterial Blood Pressure.**—Weysse and Lutz found that a rise of maximum pressure averaging 8 mm. Hg occurs immediately on the ingestion of food. A gradual fall then takes place until the beginning of the next meal. There is also a slight general rise of the maximum pressure during the day. The average maximum blood pressure for healthy young men in the neighborhood of 20 years of age is 120 mm. Hg. This pressure obtains commonly one hour after meals. The higher maximum pressures occur immediately after meals, and the lower, as a rule, immediately before meals. The range of maximum pressure varies considerably in different individuals, but the highest and lowest maximum pressures are practically equidistant from the average pressure of any one individual. The minimum blood pressure is very uniform throughout the day, and is little affected by the ingestion and digestion of meals. When it is affected a rise or a fall may take place. There is a tendency for a slight general lowering of the minimum pressure throughout the day. The average minimum blood pressure for healthy young men in the neighborhood of 20 years of age is 85 mm. Hg. Thus the authors get an average pulse pressure of 35 mm. Hg. Pulse pressure, pulse rate and the relative velocity of the blood flow are increased immediately on the ingestion of meals. They attain the maximum, as a rule, in half an hour, and then decline slowly until the next meal. There is a general increase in each throughout the day. The average pulse rate in the authors' investigations proved to be 72 beats per minute.

26. **Analysis of Nitrous Oxid.**—The details are given by Boothby and Sandiford of analysis of nitrous oxid by the method of combusting with hydrogen with the use of a modified Haldane apparatus.

27. **Effect of Work on Hemoglobin and Red Cells.**—Experimental data are given by Boothby and Berry showing that the percentage of hemoglobin and the number of red blood corpuscles, and therefore the oxygen carrying capacity of a unit volume of blood, are increased under conditions of work, causing an appreciable amount of perspiration. If no perspiration occurs there is no such increase.

28. **Circulation Rate in Man.**—A series of sixty-one determinations of the blood flow in one subject at rest and at various degrees of work are reported by Boothby. It is shown that the circulation rate increases proportionately with the oxygen consumption in a manner corresponding to the increase in the total ventilation. It is suggested that the main controlling factor in the regulation of the circulation rate is the hydrogen-ion concentration of the arterial blood and that this regulation is one of great delicacy. By comparing the increase in the circulation rate with the increase in the total ventilation, Boothby was able to estimate that on the subject studied an increase in the blood flow of 3.3 liters per minute, which is a doubling of the circulation rate, is caused by a rise in the total acidity of the blood corresponding to 2.0 mm. of carbon dioxid. This figure would correspond to a rise in the hydrogen-ion concentration of the arterial blood of about 0.013×10^{-7}.

Archives of Ophthalmology, New Rochelle, N. Y.

May, XLIV, No. 3, pp. 221-368

31 Discrete Lymphoid Infiltration of Orbit. G. Coats, London.
32 Lymphoma and Lymphosarcoma of Conjunctiva. G. Coats, London.
33 Anomalous Nerve Heads with Good Vision. M. Goldenburg, Chicago.
34 Plasmoma of Lacrimal Sac. F. H. Verhoeff and G. S. Derby, Boston.
35 Acute (Bacillus Tularense) Conjunctivitis. R. Sattler, Cincinnati.
36 Removal of Eyeball. H. S. Gradle, Chicago.
37 Changes in Blood and Aqueous Humor in Methyl Alcohol Inhalation. H. H. Tyson and M. J. Schoenberg, New York.
38 Pathology of Bell's Phenomenon. E. Kraupa, Prague, Germany.
39 Case of Bilateral Acute Serous Tenonitis. F. Pincus, Cologne, Germany.

Boston Medical and Surgical Journal

May 6, CLXXII, No. 18, pp. 657-692

40 Tuberculosis Work in Connecticut, Its Development in Last Decade and Its Future Needs. D. R. Lyman, Wallingford, Conn.
41 *Rare Type of Bladder Ulcer in Women; Report of Cases. G. L. Hunner, Baltimore.
42 Epididymotomy for Acute Epididymitis, as Out-Patient Procedure. A. H. Crosbie and A. Riley, Boston.
43 Leprosy; With Especial Reference to Pulse and Temperature. J. A. Honeij, Boston.
44 Case of Autotransplantation of Bone for Nasal Deformity Due to Syphilis. L. Arkin, Boston.
45 Myxedema Simulating Nephritis. W. D. Reid, Newton.

41. **Bladder Ulcer in Women.**—In the eight cases cited by Hunner the ulcers were all found in the vertex or summit of the free portion of the bladder; this being one important distinction in comparing the simple solitary ulcer of Fenwick which is found on the base or fixed portion of the bladder. In three of the cases the ulcer was well forward, just back of the symphysis; in four, it was in the summit, with a tendency in three of them to occupy the posterior pole region, while in one case there was an ulcer area near the posterior pole, and another on the left anterior wall immediately back of the symphysis. A chief characteristic of these ulcers is the extremely slight mucous membrane change found in certain periods of the ulcer.

The ulcer area may easily be overlooked and the attention may first be arrested by an area of dead white scar tissue. In the neighborhood of this scar-looking area, one sees one or more areas of hyperemia which, on being touched with a dry cotton pledget, or with the end of the speculum, bleed and first show their character as ulcers. In other cases, or perhaps at subsequent examination on the same case, the ulcer may be well defined as a deeply red area with granulating base and with congested vessels surrounding the area. In none of these cases has an individual ulcer area been more than a half centimeter in diameter, although two or three such ulcers have at times been grouped in a larger inflammatory area.

Illinois Medical Journal, Chicago

May, XXVII, No. 5, pp. 337-412

46 Varicosities of Pampiniform Plexus. C. D. Center, Quincy.
47 Acidosis. J. W. VanDerslice, Oak Park.
48 Digestive Disturbances of Infancy of Proteid Origin. R. R. Ferguson, Chicago.
49 Digestive Disturbances of Infancy of Bacterial Origin. R. A. Black, Chicago.
50 Myoma and Pregnancy. H. F. Lewis, Chicago.
51 Pseudomyopia. A. C. Ragsdale, Metropolis.
52 Nitrous Oxid-Oxygen Anoci-Association in Practice. D. W. Deal, Springfield.
53 Chronic Gonorrhea in Male. J. L. Boehm, St. Louis.
54 Not Very Well Known Causes of Hematuria. J. Welfeld, Chicago.
55 Treatment of Gestational Variety of Puerperal Eclampsia. W. A. N. Dorland, Chicago.
56 Choanal Fibroma. N. H. Pierce, Chicago.
57 Blood Pressure in Life Insurance. J. W. Fisher, Milwaukee.
58 Uterine Inertia and Its Management. I. H. Eddy, Chicago.
59 Psychotherapy in General Practice. W. S. Sadler, Chicago.
60 Injection of Sphenopalatine Ganglion in Some of Commoner Diseases of Nose. H. L. Pollock, Chicago.
61 Preliminary Report on New Method of Treatment for Cerebrospinal Syphilis. G. C. Fisher, Chicago.
62 Anesthetics. F. C. Vandervort, Bloomington.
63 Normal Childbirth and How to Obtain It. R. E. Hillmer, Crescent City.

Journal of Experimental Medicine, Lancaster, Pa.

May, XXI, No. 5, pp. 401-524

64 *Factors of Coagulation in Experimental Aplastic Anemia of Benzol Poisoning, with Special Reference to Origin of Prothrombin. S. H. Hurwitz and C. K. Drinker, Boston.
65 *Histogeresis of Chronic Uranium Nephritis with Especial Reference to Epithelial Regeneration.* J. Oliver, San Francisco.
66 Etiology of Goiter in Brook Trout. Effect of Feeding with Fresh and Stale Liver. D. Marine, Cleveland.
67 *Origin and Structure of Fibrous Tissue which Appears in Living Cultures of Adult Frog Tissues. G. A. Baitsell, New Haven, Conn.
68 *Nature of Anaphylatoxin. J. Bronfenbrenner. Pittsburgh.
69 *Wide-Spread Distribution of Diphtheroids and Their Occurrence in Various Lesions of Human Tissues. W. H. Harris and H. W. Wade, New Orleans.
70 *Diffusion and Survival of Poliomyelitic Virus. S. Flexner and H. L. Amoss, New York.
71 Rapid Production of Antidysenteric Serum. S. Flexner and H. L. Amoss, New York.

64. **Aplastic Anemia of Benzol Poisoning.**—Hurwitz and Drinker found that subcutaneous injections of benzol in rabbits produce marked destructive changes in the hematopoietic organs, especially in the myeloid tissue. Benzol poisoning registers a change not only in the formed elements of the blood, but also in the factors of coagulation. The circulating prothrombin is considerably reduced in amount and in most instances animals in which such a diminution occurs show aplasia of the bone marrow. The association of extreme aplasia of the marrow without a fatal diminution in the circulating prothrombin suggests one of two possibilities; either other tissues and organs in addition to the bone marrow are concerned with prothrombin formation; or a minimum amount of myeloid tissue suffices to maintain the quality of prothrombin above a dangerous level. The myeloid tissue plays no part in the production of antithrombin. Bone marrow activity is not essential for the production of fibrinogen.

67. **Fibrous Tissue in Adult Frog Tissue Cultures.**—In living cultures of various kinds of adult frog tissues, which have been made according to the hanging-drop method, Baitsell has seen in many cases, a transformation of the plasma clot by which it becomes entirely changed from a typical fibrin net both in appearance and structure. The changes in the fibrin net generally begin when the culture is from two to three days old. During these changes it appears that the elements of the fibrin net fuse or consolidate, and as a result a great number of fine wavy fibrils are formed which unite to form wavy bundles of fibers, and these freely intertwine and anastomose as they ramify through the area of the plasma clot.

Experiments show that the fibers which are formed are not outgrowths of the imbedded tissue. Also they are not formed by an intracellular action, but arise directly by a transformation of the fibrin elements of the plasma clot. The transformation of the fibrin net will not occur unless it has come under the influence of living tissues or of living isolated cells. However, mechanical means, such as exerting tension on the clot with needles, may hasten the formation of the fibers. It is believed by Baitsell that such a reaction must play an important part in wound healing. A study of the relation between connective tissue fibers formed in wound healing and in embryonic development to the fibers formed in the plasma clot is being made by Baitsell and the results will be published later.

68. **Nature of Anaphylatoxin.**—The union of fresh serum of pregnant or immunized animals with the corresponding boiled protein (substratum) is accompanied by the formation of poisonous substances. The poison originates from the serum as a result of its autodigestion and not from the substratum. The process of autodigestion may be determined by the specific or nonspecific removal of the antitrypsin of the serum. The poisons originating from the serum are toxic only for homologous animals. The autodigestion of the serum, if allowed to proceed far enough may go beyond the toxic stage. The biologic properties of these poisons indicate their close similarity to the anaphylatoxin and suggest to Bronfenbrenner that the anaphylatoxin of Friedberger is a product of the autodigestion of serum and not of the protein outside of the serum.

69. **Distribution of Diphtheroids.**—Diphtheroids are widely distributed in nature. They are present in the air, on the body surface, and at times through contamination or are indigenous in the deeper tissues. Harris and Wade are of the opinion that diphtheroids constitute a broader field of saprophytism than is generally appreciated. While some strains may represent pathogens, their aggregate is patently not of the disease-producing variety. Diphtheroids can be cultivated from various pathologic tissues to which they bear no etiologic relation, such as lesions of tuberculosis, leprosy, blastomycosis, tertiary, syphilis and tumors of various types.

70. **Diffusion of Poliomyelitic Virus.**—According to Flexner and Amoss the ordinary virus of poliomyelitis present in aseptically removed brain tissue of paralyzed monkeys survives in an ascitic fluid kidney medium at the temperature of 37 C. for a period of at least twenty, but not thirty days. Under the conditions of moderate anaerobiosis, the minute micro-organism cultivated from poliomyelitic tissues tends not to develop in cultures from the brain tissue; hence its presence does not complicate the survival test. The diffusion of the ordinary poliomyelitic virus from a noncomminuted fragment of brain tissue into a surrounding medium of ascitic fluid is so slight as not to be detectable by inoculation experiments conducted with usual quantities of the fluid. The specific effects of the micro-organism cultivated from poliomyelitic tissues are not caused by an admixture in the cultures of the ordinary virus of poliomyelitis; hence they must be caused by the pathogenic action of the micro-organism itself. The minute micro-organism is therefore regarded by the authors as the specific microbic cause of epidemic poliomyelitis.

Kentucky Medical Journal, Bowling Green

May, XIII, No. 6, pp. 213-258

72 History of Fads and Fancies in Medicines. J. E. L. Harbold, La Grange.
73 Diagnosis, Management and Treatment of Lobar Pneumonia. R. C. Adams, Salyersville.
74 Electricity in Treatment of Pelvic Diseases. J. A. Freeman, Crestwood.
75 Some Phases of Trachoma. L. E. Downs, Georgetown.
76 Renal Tumor; Report of Case. J. T. Reddick, Paducah.
77 Croupous Pneumonia. J. E. Wilson, Butler.
78 Catarrhal Pneumonia. S. M. Hopkins, Demossville.
79 Influenza. H. W. Watt, Pembroke.
80 Ruptured Bladder. P. K. McKenna, Mt. Sterling.
81 Metabolic Disturbances of Intestinal Tract with Especial Reference to Food Intoxication in Infancy. E. L. Gowdy, Campbellsville.
82 Physician as Business Man. G. G. Thornton, Lebanon.
83 Some Reflections on Healing Art. J. F. Young, Monticello.
84 Multiple Fracture of Lower End of Humerus — Open Operation. G. P. Grigsby, Louisville.
85 Duodenal Lavage; Report of Case. R. R. Elmore, Louisville.

Lancet-Clinic, Cincinnati

May 1, CXIII, No. 18, pp. 481-504

86 Cincinnati General Hospital. What It Stands For. C. E. Caldwell, Cincinnati.
87 Medicolegal Aspect of Roentgenograms in Diagnosis and Treatment of Fractures and Joint Injuries. J. D. Trawick and D. Y. Keith, Louisville, Ky.
88 Mentally Defective Aliens; Medical Problem. H. A. Knox, Ellis Island, N. Y.
89 Hereditary Influences in Achondroplasia, Report of Case of Cesarean Section. J. E. Pirrung, Cincinnati.
90 Surgery and Life Insurance. M. Souchon, New Orleans.
91 Peace Movement. P. Zenner, Cincinnati.

Medical Record, New York

May 1, LXXXVII, No. 18, pp. 715-756

92 Twilight Sleep. J. W. Brannan, New York.
93 *Propagation of Pure Vaccine Virus. H. Noguchi, New York.
94 *Chronic Dilatation of Stomach. W. H. Barber, New York.
95 American Thermal Springs: Their Therapeutic Uses; Radio-Activity of Springs in Germany, Austria and Virginia; With Regime for Patients with Gout, Rheumatism and Arthritis. G. Hinsdale, Hot Springs, Va.
96 New Application of Ergotherapy by Kellogg-Bergonie Method in Treatment of Obesity and Other Chronic Disorders. A. J. Read, Battle Creek, Mich.
97 Case of Diphtheritic Tracheobronchial Casts in Woman of 50 Years of Age. A. Levinson, Chicago.
98 Case of Round Cell Sarcoma of Meninges of Brain. G. A. Rueck, New York.
99 Carcinoma in Young. R. H. Fowler, Brooklyn.
100 Appliance for Producing Simultaneous Suction and Pressure for Use in Tonsil and Adenoid Operations. J. G. L. Borgmeyer and C. J. Larkey, Bayonne, N. J.

May 8, No. 19, pp. 757-798

101 Some Common Voice Troubles in Singers. I. W. Voorhees, New York.
102 Human Conservation. M. Glasgow, New York.
103 Modern Phases and Treatment of Basedow's Disease. O. Hensel, New York.
104 Treatment of Epilepsy from Metabolic Disturbances in Adolescence. T. A. Williams, Washington, D. C.
105 Nagelschmidt Modification of Kromayer Quartz Lamp in Treatment of Diseases of Hair and Scalp. R. W. Muller, New York.
106 Production of Sterility by Roentgen Ray. F. B. Granger, Boston.
107 Case of Rupture of Prostatic Urethra. S. W. Schapira, New York.

93. **Propagation of Pure Vaccine Virus.**—Noguchi has succeeded in propagating in the testicles of the rabbit and calf pure vaccine virus which is absolutely free of bacteria and preserves its virulence undiminished.

94. **Chronic Dilatation of Stomach.**—Chronic atonic dilatation, etiologically and therapeutically considered, Barber states, is a problem in pathologic physiology. Most cases are amenable to medical treatment. Many are relieved by suspensions. Of both of these classes many are entirely correctable physiologically by carefully planned gastro-enterostomies. The position of the stoma is vitally important and depends on the following: (*a*) For normal or hypertrophied stomachs the pylorus is the most efficient outlet. (*b*) For normal or hypertrophied stomachs the nearer the artificial stoma corresponds with the physiologic point of outlet the greater is the efficiency. (*c*) For "moderately" atonic stomachs or stomachs with 50 per cent. impaired prostaltic power, the efficiency of the stoma is probably greatest in the pyloric antrum, while (*d*) for the markedly atonic stomachs, with pronounced muscular insufficiency, the pendant stoma seems to date most efficient.

Modern Hospital, St. Louis

May, IV, No. 5, pp. 295-382

108 Southern Pacific Company's Railroad Hospital. F. K. Ainsworth, San Francisco.
109 Medical Organization of State Hospitals for Insane. W. Mabon, Ward's Island, N. Y.
110 Relation of Ophthalmic Department to General Hospital. L. B. Whitham, Baltimore.
111 Agnew's State Hospital, Agnew, Cal. E. C. Reid, San Francisco.
112 Some Administrative Practices in Small Hospital. L. Miller, Portland, Ore.
113 Associated Out-Patient Clinics of New York. E. H. Lewinski-Corwin, New York.
114 Enthusiasm that Built Splendid Hospital. P. O. Clark, Wheeling, W. Va.
115 Care of Industrial Accidents in Clinic and Hospital. W. H. Lipman, Chicago.

New Jersey Medical Society Journal, Orange

May, XII, No. 5, pp. 209-260

116 Some Disorders of Early Infancy. L. E. La Fétra, New York.
117 Treatment of Acute Suppurative Otitis Media in Infants and Children. C. C. Charlton, Atlantic City.
118 Reduction of Infant Mortality; How Can It Best Be Accomplished? G. E. Day, Collingswood.
119 Alcohol Drain Treatment of Puerperal Temperature. A. F. Dowd, Newark.
120 Tuberculin as Diagnostic and Therapeutic Agent in Tuberculosis. B. A. Pollak, Jersey City.

New York Medical Journal

May 1, CI, No. 18, pp. 869-924

121 Plastic Surgery — Corrective and Palliative Repair — In Treatment of Malignant Disease. W. S. Bainbridge, New York.
122 Splenectomy. A. A. Kerr, Salt Lake City.
123 *Theory of Mechanism of Gastric and Pain Crises in Tabes. J. Byrne, New York.
124 What Electrotherapy Cures. H. H. Seelye, Atlantic Beach, Fla.
125 Clinical and Experimental Trichomoniasis of Intestine. K. M. Lynch, Charleston, S. C.
126 Post Partum Retrodisplacement of Uterus. T. H. Cherry, New York.
127 Relative Frequency of Morphin and Heroin Habits. C. B. Farr, Philadelphia.
128 Tonsillo-Adenectomy and Control of Hemorrhage. C. F. Adams, Trenton, N. J.
129 Elimination of Soluble Radium Salts Taken Intravenously and Per Os. H. A. Seil, C. H. Viol, M. A. Gordon, Pittsburgh.
130 Bacillus Bulgaricus in Diabetes Mellitus. P. Horowitz, New York.

May 8, No. 19, pp. 925-980

131 *Radical Cure of Errors of Refraction. W. H. Bates, New York.
132 Urinary Lithiasis. V. C. Pedersen, New York.
133 *Angina Pectoris Successfully Treated By High Frequency Currents. S. Tousey, New York.
134 Problem of Inebriety. E. H. Williams, Los Angeles.
135 Nephrolithiasis. G. E. Macklem, Detroit.
136 Night Terrors. A. Stern, New York.
137 *Treatment of Sac in Inguinal Hernia. A. E. Sellenings, New York.*
138 Proper Factory Ventilation and Its Effects on Worker. H. Laveson, Washington, D. C.
139 Cerebral Hemiplegia; Sequel of Diphtheria. E. M. Auer, Skillman, N. J.
140 Possible New Test for Cerebrospinal Fluid. B. Lemchen, Dunning, Ill.

123. **Crises in Tabes.**—The gastric and pain crises of tabes are regarded by Byrne as being primarily the result of a banking of potential in the neurons distal to the lesion, namely, in the ganglion cells. This banking of potential goes on with greater or less rapidity, depending on the activity of the metabolic processes, the character of the food, mode of life, atmospheric conditions, the degree of completeness of the block in conduction at the site of the lesions, etc., until the obstruction is no longer able to prevent the passage of impulses inward toward the cord. Then individual neurons, one or any number at a time, commence discharging, and impulses reach the brain, causing pains referred to the peripheral areas of distribution supplied by the discharging neurons. In the case of the vagal and glossopharyngeal neurons the afferent impulses impinge with greatest effect on the vomiting center, causing nausea, vomiting, and the distress that accompanies them. After repeated successive discharges the cell bodies become fatigued, the potential falls below the point necessary to force a passage at the site of the conduction block, and the attack ceases for a time.

As all the neurons, however, do not discharge simultaneously, since some gather or retain their potential while others are losing it, the attacks of gastric or pain crises do not pass off immediately, except in cases in which attacks of gastric crises are temporarily aborted by such agents as morphin, pilocarpin, apomorphin, eserin, etc., and here the neurons are, to a greater or less extent discharged simultaneously soon after the administration of the drug, so that it takes some time, varying from two to forty-eight hours, before the neurons can gather sufficient potential to force the block again. In cases in which the attack has lasted some time, and in some instances in which only a certain limited group of neurons are fully, or almost fully and equally charged, the administration of morphin or of sodium salts *may discharge the accumulated potential so effectively* that the regathering of potential may take a long time. In such cases one administration of a remedy may permanently abort an attack. In reality, however, remedies seldom cause complete suspension of the attack, but merely affect the simultaneous discharge of those neurons in which the potential is at, or near the point of spontaneous discharge. The attack really comes to an end only when the potential in all the ganglion cells has become so reduced that it will take a period of some length before any of the neurons can acquire sufficient potential to force the block. The duration of an attack of gastric or pain crises depends, therefore, rather on the simultaneity and equality of accumulation of potential rather than on the number of neurons involved. General exhaustion and fatigue of the body as a whole, as well as starvation, also aid in the spontaneous termination of an attack by preventing rapid reaccumulation of potential.

131. **Radical Cure of Errors of Refraction.**—Animal experiments made by Bates demonstrate: 1. The lens is not a factor in the production of accommodation. 2. Hypermetropic refraction is always produced by a strain of two or more of the recti by electrical stimulation or advancement, and is always prevented by relaxation of these muscles by tenotomy. 3. Myopic refraction is always produced by a strain of two obliques and is always prevented by relaxation of these muscles by tenotomy. 4. Atropin prevents, when injected deep into the orbit, the experimental production of errors of refraction. 5. The cause of all errors of refraction is a strain to see. The cure is accomplished by relaxation. Relaxation is secured by central fixation. Central fixation is obtained by eye training with the aid of the Snellen test card at 20 feet and by alternately practicing central fixation with a dot or a fine point at 20 inches or nearer. After central fixation is obtained, all errors of refraction are cured.

133. **Angina Pectoris Successfully Treated.**—Tousey cites a case of *angina pectoris successfully treated by high frequency* currents from ultraviolet ray vacuum electrodes and by vibration.

Ophthalmic Record, Chicago

May, XXIV, No. 5, pp. 223-276

141 False Heterophoria and Heterotropia. E. E. Maddox, Bournemouth, England.
142 *Sclerocorneal Seton* in Treatment of Glaucoma. C. A. Wood, Chicago.
143 Case of Traumatic Enophthalmos. H. F. Hansell, Philadelphia.
144 Anterior Lens-Ring Following Contusion. Report of Case with Theory Relative to Its Pathology. T. H. Cates, Little Rock, Ark.
145 New Pair of Lid Retractors for Cataract Operation. D. T. Vail, Cincinnati.
146 Hole in Disc Associated with Vibration of Overlying Membrane. T. B. Holloway, Philadelphia.
147 Case of *Reflex Ocular Disturbances Due to Impacted Third Molars.* H. V. Dutrow, Dayton, O.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Edinburgh Medical Journal

April, XIV, No. 4, pp. 241-320

1 New Psychiatry. W. H. B. Stoddart.
2 Association of Pernicious Anemia with Subacute Combined Degeneration of Spinal Cord. B. Bramwell.
3 Outbreak of Septic Pharyngitis. A. Goodall.
4 Fracture of Radius and Rupture of Radial Artery in Chauffeur. R. C. Alexander.

Indian Medical Gazette, Calcutta

March, L, No. 3, pp. 81-120

5 Surgical Survey of Casualties in Mesopotamia. C. H. Barber and E. E. Doyle.
6 Serodiagnosis of Syphilis. W. D. Sutherland and G. C. Mitra.
7 Studies in Malaria. (To be continued.) H. Stott.
8 Action of Quinin and Arsenic Preparations in Kala-Azar. S. L. Sarkar.
9 Significance of Arneth's Leukocyte Count. H. H. G. Knapp.
10 Heart Strain Among Sepoys. E. H. V. Hodge.
11 *Iodin and Vaccination. L. B. Scott.
12 *Right Scrotal Fecal Fistula (Hernia). W. Vost.

11. **Iodin and Vaccination.**—Iodin was recently extolled as a *preliminary disinfectant of the skin in* vaccination. Some experiments were therefore carried out under Scott's direction in the ordinary course of preparing calf vaccine at the Shillong vaccine depot. Among the calves being vaccinated

one was occasionally taken at random and prepared with iodin instead of by the usual method of cleansing the skin. Each iodin calf was thus vaccinated along with one or more others, with the same lymph and under the same conditions. The average yield of the iodin calves was 7.7 gm. and of the others 26.6 gm. Of the iodin calves, two developed so few vesicles that no useful amount of vesicular material could be removed. The other ten yielded from 2.0 to 25.5 gm. Of the 47 control calves, one yielded none and the remainder from 9.5 to 62.8 gm.

It was plain that iodin as used in this experiment seriously interfered with the development of vesicles. This was obvious to the eye without any calculation of the weight of lymph yielded. Instead of the usual thick crop, only a few scattered vesicles formed on the scarified area. The difference lay in the number of vesicles which developed and not in their size or quality. Those which did form were normal in appearance. In none of the iodin calves did vaccination actually fail altogether, but the success rate per puncture was reduced to about 25 per cent. instead of the usual 80 to 90 per cent. Only two of the iodin calves yielded anything like a good crop of vesicles.

12. **Right Scrotal Fecal Fistula.**—This was an ordinary case of reducible scrotal hernia of two years' duration in a boy of 12. Nearly a month and a half before the operation by Vost the hernia became swollen, irreducible and extremely painful, and the parents thought an abscess was forming and treated it locally for the same. Then it burst, and left a fistulous opening through which fecal matter began to pour out. The boy's general health was fairly good and he was passing feces both through the anus and scrotal fistula. The operation was successful. The opening in the bowel was closed and a Bassini operation for hernia was done.

Journal of Obstetrics and Gynecology of British Empire, London

October-December, XXVI, No. 4, pp. 177-264

13 *Distribution and Significance of Parametrium. M. Moritz.
14 Origin and Phylogenetic Significance of Female Genital Passages. S. E. Wichmann.
15 Primary Echinococcal Invasion of Ovary, or Other Pelvic Hydatids Collected from Various Sources in Australia. H. C. T. Young and D. A. Welsh.
16 *Coxalgic Pelvis. H. Briggs.
17 *Etiology and Treatment of Hyperemesis and Other Forms of Pregnancy Toxemias. E. H. Tweedy.
18 Double Ureter Simulating Parovarian Cyst in Right Broad Ligament. C. Lockyer.
19 Case of Myomectomy During Pregnancy. M. H. Phillips.
20 Case of Fetal Death from Rupture of Velamentous Vessels. M. H. Phillips.
21 Acute Intestinal Obstruction Following Septic Miscarriage. W. F. Shaw.
22 Multilocular Cystic Tumor of Uterus. J. B. Hellier.
23 Case of Hydrometra. M. H. Phillips.
24 Double Uterus with Right Pyocolpos. W. E. Fothergill.
25 Three Cases of Rupture of Pregnant Uterus Through Scar of Former Cesarean Section. W. K. Walls and W. F. Shaw.
26 Marsupialization of Degenerated and Infected Fibroid. W. E. Fothergill.

13. **Significance of Parametrium.**—This tissue, according to Moritz, forms the vascular pedicle of the pelvic viscera. In it the vessels, nerves and lymphatics of the pelvis take their course. Its arrangement is similar to that of all mesenteries. By means of the sheaths covering these structures they are enabled to adapt themselves to the everchanging directions and dimensions of the pelvic viscera. The viscera themselves are further enabled to do this without undergoing any danger of interference with their blood supply. The densest part of this tissue is situated around the cervix uteri, and therefore that is the most fixed point of the uterus. The chief blood supply to the uterus lies just below this area. The result is that the uterus is enabled to undergo the remarkable physiologic changes to which it is subject without interference with its vascular supply.

The retroperitoneal pelvic connective tissues have been evolved in man, simultaneously with other modifications, on the assumption of the erect attitude. An examination of these tissues in lower animals (rabbits, cats, hedgehogs) shows that they are devoid of smooth muscle fibers, consisting only of a loose reticular tissue with large spaces filled with fat. The tailed monkeys possess a connective tissue which is still poor in smooth muscle and supporting elements but these are present in larger amounts than in the connective tissues of quadrupeds. The pelvic connective tissues of the anthropoid apes are exceedingly rich in smooth muscle and supporting tissue. The higher up we go in the scale the richer this tissue becomes in smooth muscle and the better it thus is adapted to the mechanical duty of keeping the pelvic viscera in position.

It is also worthy of note that the chief supporting elements of the tissue are developed conversely as the pelvic floor becomes more sphincteric in its action, and is less used for the purposes of movements of the tail. Also that these tissues become of a more highly specialized nature and assume more important functions with regard to the maintenance of the position of the pelvic viscera as the erect attitude is developed. It is worthy of note that the position of the uterus as regards anteversion or retroversion is also determined by the state of the parametrium to a considerable extent. A diseased parametrium, namely, a parametrium that has lost its tone or is poor in smooth muscle, in spite of the presence of round ligaments predisposes to retroversion. If a model of a uterus be fixed round its cervical segment by numerous strands of elastic, all having as near as possible the same tension as in a pelvis in the erect attitude, the model takes up a position of anteversion. Different areas of the elastic strands being loosed causes the model womb to assume different displacements. A strong contraction of the anterior strands will cause acute anteversion just as a slackening of this group of elastic or a pull of the posterior bands will cause retroversion. The effect of periodic changes in the sizes of the rectum and bladder will not lessen to any extent the value of this experiment. The important part this tissue plays in keeping the uterus in its normal position, therefore, is seen, and one realizes why retroversions are so common in cases of prolapse.

The structure of the connective tissue, namely, the extensible vessels, strengthened by elastic masses of smooth muscle, allows all the changes of pregnancy, of full and collapsed bladder and of rectum, etc., to take place without any vascular interference with the normal state of these tissues and without vascular disturbances.

16. **Coxalgic Pelvis.**—Five cases are cited by Briggs, all with lateral tilting of the pelvis. In each the left half of the pelvis, the diseased side, was raised. In four the right occipito-anterior and in one the left occipito-anterior were recorded as the positions of the vertex presentations. Natural delivery was accomplished in two, forceps were used in one, induction in one, craniotomy in one. Briggs believes that the conclusion is inevitable that the diseased side is raised and that the mechanism of labor is thereby favorably influenced in the moderately contracted coxalgic pelvis.

17. **Etiology and Treatment of Hyperemesis.**—Tweedy directs attention to the importance of the following clinical facts: 1. Food irritation is not a factor in increasing symptoms of toxemia of pregnancy, for croton oil has no tendency to aggravate symptoms. 2. While toxemic exacerbations may possibly arise from absorption of intestinal ferment, in practice this is found to be the exception rather than the rule, for violent vomiting may be induced or eclamptic seizures started in a few minutes after milk has been given, and before it could by any possibility have undergone fermentative change. The conclusion is forced on Tweedy that absorption of food particles during the earliest stages of their digestion are the responsible agents in hyperemesis and eclampsia.

Sterile milk or other foodstuffs, if injected directly repeatedly into the blood, is apt to exercise a poisonous effect. It is said that this poisonous effect is due to an absence of specific antibodies, for those present in the blood are incapable of rendering harmless the food particles until they have been modified by first passing through the mucous surfaces of stomach or intestines. In early pregnancy a foreign albumin appears in the blood and Tweedy suggests that the normal food antibodies are interfered with thereby. Thus the early sickness of pregnancy becomes understandable; it may be considered Nature's effort to reject food incapable of proper neutralization. It is also probably eliminatory in its effects, for its occurrence in the early morning will remove from the system the digestive excesses of the previous day. When it fails to do this, thoroughly toxemic symptoms arise. In most instances tolerance to food is eventually established, but the extent of the failure of the food particle to unite with its antibody is the measure of the severity of the toxemia. The fact that kidney inflammation is rarely seen in the early months of pregnancy may be due to the efficient eliminatory action of morning vomiting. In the worst cases of hyperemesis the alarmed stomach fails to discriminate between harmful and harmless stimuli and endeavors to reject everything; even the presence of spring water can no longer be borne, and, indeed retching can be induced by mere suggestion.

In one case of hyperemesis Tweedy tried the effect of giving olive oil before food was taken. The treatment was based on the popular belief that oil taken before a meal will prevent the most unwholesome banquet and the worst wines from disagreeing; it is supposed to do so by preventing or at least lessening the rate of absorption. The patient aborted before any data could be obtained in respect to efficiency of the method. She is now again pregnant, and in no way suffers from untoward symptoms. She attributes her immunity to the taking of petroleum in the early morning, and declares if she omits to do so vomiting recurs.

Sei-I-Kwai Medical Journal, Tokyo

January, XXXIV, No. 1, pp. 1-4

27 Pharmacologic and Chemical Study of Earth Worm. R. Mizoguchi.
28 *Experimental Study of Thyrotoxic Symptoms. T. Mori.
29 Observation of Kala-Azar in Chinese Child. S. Saito.
30 *Pathologic Meaning of Worms in Vermiform Appendix. Y. Matsuoka.

28. **Study of Thyrotoxic Symptoms.**—Mori produced artificially an inflammation of the thyroid in dogs and studied the subsequent symptoms. In some dogs paraffin (melting point 40 to 50 C.) was injected into the thyroid and in others after the same injection the thyroid was warmed for two to three hours, or iodid of potassium was given internally. Again, chlorid of calcium was injected into the gland instead of the paraffin. In all cases an inflammation of the thyroid with subsequent thyrotoxic symptoms was produced, and the author thinks the direct cause of the thyrotoxic symptoms was the resorption of the contents of the follicles.

30. **Pathologic Meaning of Worms in Vermiform Appendix.**—Matsuoka tried to determine whether the inflammation of the vermiform appendix can be caused by the worms which are frequently present in it, how often one meets the worms in the appendix, what changes they can produce in the tissues and what relation these changes have to the changes produced by the inflammation. He found the parasites or their eggs in 48 out of 103 removed appendixes; in 29 cases (28.27 per cent.) he found the oxyuris vermicularis and in 2 cases (1.9 per cent.) trichocephalus dispar. The oxyuris was found three times (9 per cent.) in 33 cases of acute appendicitis and twenty-six times (37.1 per cent.) in normal appendixes. Forty-five (43.7 per cent.) of the 103 removed appendixes were found to be normal. Parasites were found in 25 of these 45 cases (55.6 per cent.) and in 91.7 per cent. of these cases sent away from the surgical clinic. The 25 cases in which the parasites were found showed no signs of an inflammation although they were clinically diagnosed as appendicitis.

Matsuoka concludes, therefore, that the parasites do not cause appendicitis, although they produce symptoms which may be named appendicopathia parasitaria and which are characterized by the absence of fever and pain on pressure over the ileocecal region. The author's view is in opposition to that of Rheindorf, which accepts the causative relation between the parasite and appendicitis, and he thinks that the boring canals mentioned as of importance by Rheindorf are artificially produced slits in the tissues of the organ.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

January, IV, No. 1, pp. 1-48

31 *Vaginal Cesarean Section. P. Bar.

February, No. 2, pp. 49-96

32 *Delivery with Patient's Pelvis Deformed from Congenital Dislocation of the Hip Joint. (Sur l'accouchement dans les bassins viciés par luxation congénitale de la hanche.) L. Péry and Balard.

31. **Conservative Vaginal Cesarean Section.**—Bar remarks that Dührssen's vaginal cesarean section has never found favor among French obstetricians, but that he, Bar, has found it of great service when conditions called for immediate evacuation of the uterus, as in case of uncontrollable vomiting, in failing compensation in heart disease, or other indications calling for prompt relief from the pregnancy. He says it is beyond question that vaginal cesarean section is much less dangerous than abrupt dilation of the cervix with the Bossi instrumental dilator, for example, which lacerates the cervix. He even prefers the Dührssen technic for cases requiring early abortion, if the cervix is narrow and not flexible. He prefers it to bougies for primiparae under these conditions. With eclampsia in an advanced pregnancy, it permits the extraction of the child when the cervix of a primipara is still long and narrow. The results are excellent in such cases unless the child is unusually large. The proper moment for it under these conditions is at the eighth month or two weeks later. Bar does not care to apply this technic in placenta praevia.

He gives fourteen large illustrations showing the various steps of vaginal cesarean section; it makes a surgical opening into the uterus under complete control, in a comparatively harmless region, leaving nothing to chance. It can be done under local or general anesthesia, as he describes in detail. He does not attempt to dilate the cervix beforehand, but leaves a small drain between the cervix and the bladder, if there is any dread of a thrombus. The tampon is withdrawn from the vagina in fifteen or twenty hours, and the sutures are treated as after any colporrhaphy. With the technic illustrated, he remarks in conclusion, the operation is easy. It is only very rarely that there is any serious hemorrhage from the wall of the uterus if the child is of medium size and the lower segment of normal configuration. He has never had hemorrhage of this kind but once, and then it was easily arrested by drawing down the cervix until the bleeding vessel was seen and the bleeding arrested with a single stitch. There is scarcely any danger of hemorrhage when the operation is done under local anesthesia plus a little epinephrin.

There is some danger of injury to the bladder; Hauch has statistics showing that this occurred in 11 out of 257 cases, Peterson, in 9 out of 267, and Dach 7 in 76 cases. Chirié has also reported a case in which a fistula into the bladder followed the falling off of an eschar. Bar has never had any trouble in this line and thinks there is little danger of injuring the bladder while it is being detached unless the plane of cleavage has been obliterated by old inflammatory processes. The special danger for the bladder and also of rupture of the peritoneal vesicovaginal pouch occurs when the fetus is being extracted with forceps.

32. **Delivery with Pelvis Deformed from Dislocation of the Hip Joint.**—The two cases reported by Péry and Balard confirm the view that in such cases it is not the limp nor the dislocation that is the greatest obstacle to normal delivery but the atrophy which results from the congenital luxation. The extreme slant of the pelvis in one case did not seem to interfere with the delivery; the head engaged spontaneously at the first labor contractions. Such a slant would be of serious import if forceps had to be used as they would have to be introduced perpendicularly. In this case expulsion proceeded spontaneously and rapidly, and this is the rule in a pelvis with luxation of the heads of both femora. In the second case the congenital dislocation of the left hip joint had entailed considerable atrophy of the limb and of that side of the pelvis, with complete ankylosis of the joint. All the measurements were larger than in the first case except the external bis-ischiac or transverse diameter; this was 2 cm.

smaller, measuring only 9 cm., evidently the result of the atrophy of the left side of the pelvis, verified by roentgenography. This was accepted as a sign that delivery could not proceed spontaneously, and the woman was artificially delivered at eight and a half months, with excellent outcome for both mother and child.

Presse Médicale, Paris

April 15, XXIII, No. 16, pp. 121-128

33 Attempts at Chemotherapy and Vaccine Therapy for Wounds in War. J. Danysz.
34 The Curve of the Reaction of Degeneration in Estimation of Injury and Prognosis in Wounds of the Nerves. (Quels renseignements nous fournit la réaction de dégénérescence dans les blessures des nerfs?) A. Zimmern.
35 *Diagnosis of Suppurating Arthritis After Fractures in War. Chaput.
36 Six Months' Experience at a Clearing Hospital. G. Bergasse.
37 Open Bridge Plaster Casts. (Plâtres à anses sans armature.) E. Pouliquen.

35. **Unsuspected Arthritis after Fractures.**—Chaput states that suppuration in the nearest joint after fracture of a long bone is common, but is frequently overlooked. Any fissure in the bone is liable to permit the suppuration to extend and involve the joint. Such fissures should be sought for with special care in operating on the fracture. Certainty can be attained by *puncturing the joint and injecting enough* of a 1:1,000 solution of methylene blue to distend the synovial membrane slightly. If there is a communication with the fracture focus, the pus at this point will become tinged with blue in a few seconds. Even when the joint is opened up, it may seem sound, but arthritis should be suspected if the bones are friable and the color of the cartilage, synovial sheaths and intra-articular ligaments is not quite normal.

Berliner klinische Wochenschrift

April 12, LII, No. 15, pp. 365-392

38 Action of Gold Salts and Radiotherapy on Tuberculous Organism. G. Spiess and A. Feldt.
39 *Uremia. H. Strauss.
40 *Diphtheria and Scarlet Fever from Sociologic Standpoint. T. Benda.
41 Sphygmobolometry. (Die Sphygmobolometrie Sahli's und ihre Kontrolle.) G. Ollino.

39. **Uremia.**—Strauss remarks that the last ten or twelve years have seen considerable progress in our knowledge of retention of substances by the kidneys and of uremia in general, especially of the pseudo-uremia which does not show the high proportion of residual nitrogen in the blood that is characteristic of true uremia. He classifies pseudo-uremia as that with a tendency to convulsions and that with a tendency to stupor or delirium and high blood pressure, with or without symptoms of localized irritation or of deficit. There may also be dyspepsia and bilateral twitching, but these are never prominent in this type. In the convulsion type the seizures may be like those of epilepsy. They begin suddenly, and are most common with acute or subacute nephritis in children and youths. This type is closely analogous to puerperal eclampsia not only in the manifestations but in the lack of high residual nitrogen content. (In four cases he found only 40 to 60 mg. of residual nitrogen.) True uremia, with residual nitrogen between 120 and 150 mg. or higher, is encountered mostly with vascular nephritis, and thus occurs at all ages. The severer forms are met mostly in middle life or later, although the disease can be traced back into youth.

The residual nitrogen is thus important for the prognosis, as a high figure gives an unfavorable outlook, as a rule, other things being equal. He discusses the preferable technic for its determination in the blood and also for the urea, declaring that chemical examination of the blood serum affords the only reliable information as to maximal insufficiency of the kidneys. A host of pregnant facts are awaiting discovery, he exclaims, when physicians *take the trouble to investigate* the type of true or false uremia to which a case belongs, and discriminate more sharply. He gives a half-page table in which the clinical pictures in true uremia and in the two forms of pseudo-uremia are compared, listing sixteen groups of symptoms in each. The blood pressure in true uremia is generally increased, but it is very high in the arteriosclerosis type of pseudo-uremia and only moderately high in the other type.

40. **Diphtheria and Scarlet Fever from Sociologic Standpoint.**—Benda has been comparing the statistics for different districts in Berlin during the last three years, and discusses them from various standpoints. They show that diphtheria was more common among the poorer classes and scarlet fever among the well-to-do, proportionally. The mortality of both, however, is proportionally less among the well-to-do, but the individual predisposition is an important factor.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 3, XLV, No. 14, pp. 417-448

42 The Wounds in the Present War. (Kriegsärztliche Beobachtungen.) A. L. Vischer and P. Ryhiner.

Deutsche Zeitschrift für Chirurgie, Leipzig

March, CXXXIII, No. 1, pp. 1-112

43 *Anesthetization of the Abdominal Cavity. (Anästhesierung der Bauchhöhle.) L. Adam.
44 *Removal of Large Intrathoracic Goiters. W. Jehn.
45 Ileus from Tumor and from Internal Incarceration. (2 seltene Fälle von Ileus.) K. Stetter.
46 Operative Findings with War Wounds of Peripheral Nerves. F. Voelcker.
47 *Adhesive Plaster Dressing for War Wounds. (Ueber Heftpflasterverbände zur Beschleunigung der Heilung von Schusswunden.) E. Eisner.
48 Treatment of War Wounds of the Intestine. (Darmschüsse.) A. Krall.
49 *Tendon Plastic Operation for Paralytic Talipes. (Zur Behandlung des paralytischen Klumpfusses.) H. Matti.

43. **Local Anesthetization of Abdominal Cavity.**—Adam shows that for operations on the abdomen to be possible without pain, it is necessary to anesthetize the skin, the layers of the abdominal wall, the parietal peritoneum, the mesentery and the lesser omentum. Then he discusses the innervation and the points at which conduction can be blocked, and relates his experience with operations done without pain under paravertebral blocking of nerves. This does not include his operations for appendicitis or on one kidney or breast, done under paravertebral blocking of one side only. No disagreeable by-effects were noticed except in three cases; one patient had a hysteric spasm after the first injection, and two others grew pale and the pulse ran up to 120, but all returned to normal by the end of the operation. In another group of 95 cases, operations were done on the cecum under direct local anesthesia.

To anesthetize the entire abdomen it is necessary to inject the anesthetic to block the nerves from the fifth dorsal to the third lumbar vertebrae. Three injections each are made with one introduction of the needle, pointing it in different directions. An illustration is given to show the technic on the seated patient as practiced in Dollinger's service at Budapest. The experiences with it are said to have been very encouraging. The aim is to block the nerve at the point from which it controls the largest area. The patients do not feel the depression common after general anesthesia, and vomiting is extremely rare and never protracted. There is further no tendency to postoperative dilatation of the stomach nor to aspiration pneumonia. The numerous injecting points and the large amount of the anesthetic used, from 120 to 160 c.c. of the 1 per cent. solution of novocain, are drawbacks that may be reduced with improved technic. The experiences to date, however, show that local anesthetization of the abdomen can be realized.

44. **Large Intrathoracic Goiter.**—In Jehn's five cases at Zurich the goiter removed measured 6 by 10 by 11 cm. in one case, and 7 by 13 in another. The goiters weighed from 170 to 500 gm. All the patients were immeasurably relieved *by the removal of the goiter*, but one woman succumbed three weeks later to pulmonary embolism. The tumors were so vascular that it would have been dangerous to cut into them, so they were shelled out whole. In order to do this, the manubrium was slit and it spread at once enough for the purpose. The operation was much facilitated by being done

under positive pressure in Sauerbruch's air cabinet. The operation was under local anesthesia alone in four cases.

47. **Overlapping Adhesive Plaster Dressings for War Wounds.**—Eisner has revived this old method of treating wounds. He applies it when the region is beginning to heal and the temperature is normal or only slightly above. He found the method useful in particular for extensive, shallow wounds. The best results were obtained with an adhesive plaster made with admixture of scarlet red.

49. **Tendon Plastic Operation for Talipes.**—Matti reports the success in paralytic talipes of an operation in which a strip of the tendon of the peroneus longus is slit off and utilized to provide a second attachment for the tibialis anticus on the lateral margin of the foot at the head of the fifth metatarsal bone. This does not interfere in the least with the normal dorsal extension or supination action of the tibialis anticus, but it compensates perfectly for the pronation defect and hence the abnormal lifting of the side of the foot. He refrains from using the flexor or supinator muscles of the posterior group, when only the extensor and pronator group are at fault. Some cases may require shortening of the peroneus tendon or substitution of the peroneus function by grafting a lateral flap from the tibialis anticus on the tendon of the peroneus longus in the leg. Still other cases are corrected more smoothly by dividing the tendon of the peroneus longus, drawing it out through a buttonhole back of the head of the fifth metatarsal bone and grafting it on the tendon of the tibialis anticus above the ligamentum cruciatum, after tunneling under the fascia on the dorsum of the foot. The exact technic of various measures to meet different indications is described, with illustrations of a few typical cases of paralytic talipes, a sequel of poliomyelitis or of unknown origin.

Medizinische Klinik, Berlin

April 11, XI, No. 15, pp. 413-442

50 Attenuated Criminal Responsibility from Standpoint of Military Discipline and Compensation (Nervöse und psychische Erkrankungen im Kriege. II.) A. Westphal and A. H. Hübner.
51 *Hygiene in the Field. P. Kuhn and B. Möllers. Continued.
52 *Garments to Protect Against Typhus. (Schutzkleidung gegen Flecktyphusübertragung.) C. Flügge.
53 Plaster Bridge Casts for Fractures in War. (Behandlung von Schussfrakturen mittels Gipsbrückenverbänden.) O. Grasser.
54 Sympathetic Ophthalmia in War. C. Adam and Others.
55 Synthetic Camphor Ranks with the Natural. C. Bachem.
56 *Treatment of Pregnancy Disturbances on Basis of Faulty Metabolism. (Zur diätetischen und medikamentösen Beeinflussung der Schwangerschaft und zur Eklampsiebehandlung.) P. Rissmann.

51. **Hygiene in the Field.**—Kuhn and Möllers describe the arrangements enforced wherever the troops are quartered, to ensure the health of the troops and of the native inhabitants. Facilities for bathing are provided in remodeled factories, etc. After bathing, the men are usually given tea. Provisions are also made for sports and outdoor games, and prizes are offered, as this is considered better in this "war of nerves" than sitting indoors when off duty.

52. **Typhus.**—Flügge relates that typhus has been contracted at the prisoners' concentration camps in Germany by twenty-three of the attendants and twelve of the physicians, and that eight of the latter have died. Better methods of warding off vermin must be devised, and he suggests, with rubber gloves, a one-piece suit covering all but the head, with adhesive plaster to close the openings at wrists and neck. Where this is not feasible, the edges can be smeared thick with Canada balsam or other sticky substance that would catch vermin like sticky fly paper. He stands on a sheet in removing the overgarment and the whole is then wrapped up and sent to be sterilized.

56. **Dietetic and Medicinal Influencing of Pregnancy Disturbances.**—Rissmann expatiates on the changes in the metabolism which regularly accompany pregnancy. About two-thirds of all pregnant women suffer more or less from them, and the condition should be regarded as pathologic as much as in a person with gout or diabetes. With these, we do not wait for serious symptoms to develop before instituting dietetic measures, and this should be the rule also in pregnancy. Meat and stimulants should be used sparingly, and the stomach should never be overloaded and no constipation allowed. By this means, supplemented with ovarian extract and salts, it is possible to tide the patient along and never let the pathologic condition get so serious as to bring on eclampsia. It is on a plane with uremia and diabetic coma to which metabolic disturbances have been leading up. Eclampsia, he declares, never occurs without warning signals: The residual nitrogen is abnormally high, there is also retention of sodium and generally also of potassium. Hence, he emphasizes, saline infusion is contraindicated; sedatives other than morphin and chloral should be given, as morphin acts on the medulla first, while chloral is dangerous for the kidneys and heart. A narcotic should be selected that raises the threshold for stimulation of the brain and blocks sensory stimuli from reaching the consciousness. Once the convulsions have developed, the uterus should be evacuated without delay. Lumbar puncture has been advocated by many clinicians in the eclamptic form of pseudo-uremia, and in true "retention uremia," plenty of water by the drop method in the rectum. Intravenous infusion of an isotonic (4.5 per cent.) solution of grape sugar after venesection aids in the lavage of the blood.

Münchener medizinische Wochenschrift, Munich

April 6, LXII, No. 14, pp. 465-496

57 Intoxication from Gases from Exploding Shells. (Vergiftung durch kohlenoxydhaltige Explosionsgase aus Geschossen.) L. Lewin.
58 *Serodiagnosis in Dermatology. (Mittels des Abderhaldenschen Dialysierverfahrens gewonnene Ergebnisse auf dem Gebiete der Dermatologie.) G. Stümpke.
59 *Simplified and Improved Technic for Esophagoscopy. (Die Sekretentfernung bei der Oesophagoskopie.) W. Sternberg.
60 Acute Pancreatitis. H. Mehliss. Commenced in No. 13.
61 Fatigue versus Exhaustion. (Erschöpfung und Ermüdung.) C. Jacobj.
62 Principles for Treatment of Wounds in War. F. F. M. Haenel.
63 *Epinephrin in Treatment of Bacillary Dysentery. F. v. Gröer.
64 *Symptoms of Psychic Deficiency After Wounds of the Brain. (Psychische Ausfallserscheinungen nach Hirnverletzungen.) W. Poppelreuter.
65 *Trephining the Olecranon to Drain the Elbow. (Zur Drainage des Ellbogengelenkes.) G. Doberauer.
66 Massage Under Superheated Air. (Heissluft-Massage.) A. E. Stein.
67 *Prognosis and Treatment of Abdominal Wounds in War. (Bauchschüsse im Kriege.) G. Perthes. Commenced in No. 13.
68 Vaccine Treatment of Gas Gangrene. L. Kathariner.
69 Efficacy of Liquid Paraffin with or Without Admixture of Iodoform in Treatment of Wounds in War. (Einfaches, erfolgreiches, im Balkankrieg erprobtes Wundbehandlungsmittel.) Chrysospathes (Athens).

58. **Serodiagnosis in Dermatology.**—Stümpke has examined the serum from 200 patients with skin disease and hundreds of controls, following Abderhalden's technic. With gonorrheal epididymitis, prostate, epididymis and testicle tissue were digested almost constantly and in some cases also seminal vesicle tissue. In psoriasis there was digestion of kidney tissue, as also in recent generalized syphilis. With the latter, liver and spleen tissue were also digested. Most of the skin affections tested also showed digestion of kidney tissue; liver tissue was acted on likewise by serum from most of the cases of toxic dermatitis.

59. **Technic for Esophagoscopy.**—Sternberg's advocacy of the prone (abdominal) position for esophagoscopy was mentioned in these columns April 24, p. 1457. He here expatiates on its advantages in permitting the free outflow of secretions, and that the patient, in this position, can hold the tube himself and aid in other ways so that no assistant is required. By introducing a stomach tube to the point of the obstruction in the esophagus, negative and positive pressure can be alternated, thus releasing and pumping out all secretions.

63. **Epinephrin in Treatment of Dysentery.**—Gröer has found that epinephrin by the mouth has a remarkable action in quieting the abdominal pain and tenesmus which torment the patient in the severer cases of dysentery. By giving the epinephrin every one or two hours it is possible to keep the patients entirely free from pain. In an experience with 300 cases he found that even enormous amounts were borne without appreciable by-effects. The same action was apparent after intramuscular injection of epinephrin, but with this the

usual effects on the heart were apparent, which was not the case when given by the mouth; only the relief from abdominal pain, nausea, and singultus was realized then. Pain in stomach or bowel of non-dysenteric origin was not affected in a number of cases. Addition of epinephrin to tepid saline for flushing the bowel also had such a remarkably favorable action that it suggests the possibility that epinephrin may have a direct neutralizing action on the dysentery toxin. His own experience and that of Marie and Kassowitz have confirmed that epinephrin has a detoxicating effect on diphtheria toxin to a certain extent.

64. **Psychic Symptoms after Wounds of the Brain.**—Poppelreuter has had thirty patients with brain wounds under his care and supervision for months, and has thus learned a number of points with regard to deficit phenomena. Among those he emphasizes is that the capacity for figures may be impaired when there is no actual aphasia. Hence testing with figures is a peculiarly delicate test for injury of the brain. In one shell wound of the left inferior occipital lobe, the man was unable to do any sums in division although no other mental disturbance was apparent. In nearly all the cases of injury of the right hemisphere there was more or less loss of memory. One medical student thus had lost all memory of the chemical formulas and prescriptions he had learned in his eight semesters. Localized injury of the brain entailed not only the specific deficit phenomena but the whole personality was essentially modified. The results of reeducation and training have been very gratifying, hemiplegics are learning to use the typewriter, and the deaf are learning lip reading, etc.

65. **Draining the Elbow.**—A bullet ploughed through the olecranon and the facilities for draining thus realized were so unusually good that Doberauer since has systematically trephined the olecranon in all cases requiring drainage of the elbow. He extols the advantages of this technic as it not only drains the joint by gravity and permits ample access but it leaves the ligament apparatus intact and avoids all danger of injury of nerves. The functional outcome was thus surprisingly perfect even when a bullet or shell had injured the bone and suppuration had followed.

67. **Abdominal Wounds.**—Perthes relates that the largest majority of the abdominal wounds in this war prove fatal within three days. About 42 per cent. succumb of those reaching the field hospital. In fully half of those leaving the field hospital alive, no viscus was injured and naturally these recover. Many of the others succumb to later complications. It is possible that better results might be obtained with operative treatment by one skilled in abdominal operations if done within twelve hours, when the general condition does not indicate irreparable lesions.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 25, XXXVI, No. 24, pp. 369-384

70 Crotalin in Epilepsy; Five Cases; No Appreciable Benefit. (Sul valore curativo del veleno del crotalo nell' epilessia.) G. Corso.

April 4, No. 27, pp. 417-432

71 *Associated Lymphoid and Myeloid Proliferation. (Le linfomielosi associate.) G. Ghedini.

72 *Landau's Color Test for Syphilis. (Studio della reazione di Landau nella sifilide.) G. Cappello.

April 8, No. 28, pp. 433-448

73 Painless Delivery Under Narcophin-Scopolamin; Seven Cases. (Il parto senza dolore.) E. Curti.

71. **Combination of Lymphosis and Myelosis.**—Ghedini remarks that the association of abnormal proliferation of the lymphatics with proliferation of the blood-producing organs is not admitted by some, but he cites four typical cases to establish its possibility. One is from his own experience and one was observed by Ollino, the others by Herz and Frank. In his case the myelosis came on in the course of chronic lymphosis, in two others the two seemed to develop together, and in the fourth case the lymphosis developed during chronic myelosis. Some were of the leukemic and some of the aleukemic type.

72. **Landau's Color Test for Syphilis.**—Cappello's experience with the Landau test has been extremely favorable. The findings in 41 cases were positive in 13, dubious in 4 and negative in 24 while the parallel Wassermann was positive in 11 and negative in 26. In 27 cases (65.8 per cent.) the two tests gave concordant findings, including 8 with positive reactions. The tests gave contradictory findings in 17.3 per cent. In the 14 other cases in which there was partial disagreement, the clinical manifestations sustained the Landau findings against the Wassermann in 6 cases, and sustained the Wassermann against the Landau in 2. In 4 cases of syphilis in which vigorous treatment had been given, the Landau was still positive in 3, while only 1 responded positively to the Wassermann, indicating that the Landau is more sensitive than the other. He says he followed Landau's second technic which he cites as follows, crediting it to the *Presse Médicale*, May 2, 1914: To 0.2 c.c. of the blood serum in a test tube he adds 0.1 c.c. of the reagent, represented by a 1 per cent. solution of iodin in carbon tetrachlorid. The mixture is set aside at room temperature for four hours. With normal serum the fluid is an opaque white, while syphilitic serum is clear and transparent. Cappello made up the reagent fresh each time, with serum not over six hours old, and free from hemoglobin. The only change he made in this technic was to use *double the quantities of both serum and reagent.*

Policlinico, Rome

April 11, XXII, No. 15, pp. 485-516

74 Rapid Healing Under Neosalvarsan of Old Chronic Ulcus Rodens of the Vulva; Three Cases. V. Fisichella.

75 Forcing of the Heart and Its Consequences. (Lo sforzo del cuore e sue conseguenze.) P. Ercolani.

Riforma Medica, Naples

April 3, XXXI, No. 14, pp. 365-392

76 Universal Oscillometer. A. Fulchiero.

77 *Diagnosis of Tumors of the Thymus. (Alcune forme di neoplasia timica.) A. Roccavilla. Commenced in No. 13.

78 Peritonitis Simulated by Suprarenal Hemorrhage. (Sindrome pseudo-peritonitica consecutiva ad emorrhagia traumatica di una capsula surrenale.) R. Mosti. Commenced in No. 12.

April 10, No. 15, pp. 393-420

79 Castellani Method of Preparing Typhoid-Paratyphoid Mixed Vaccine. F. P.-Titone.

80 *Operative Treatment of Sagging Liver and Gallstones. (Epatopessia e colecistostomia contemporanee per epatoptosi totale e calcolosi.) M. Francini.

77. **Thymus Tumors.**—Roccavilla describes a unique case of a tumor in the thymus—although Claude has recently reported a case resembling it in some respects in a man of 51 with paralytic myasthenia. He was under close medical observation for eight months but never presented any symptoms of pressure in the mediastinum, and yet necropsy revealed a retrosternal encapsulated primary epithelioma starting in the thymus. It had developed mostly to the right so there was no pressure on the trachea or large vessels. In Roccavilla's case the large tumor in the thymus was of a lymphosarcomatous and endotheliomatous nature. The patient was a man of 52 with paraplegia, and he was under observation only two months before his death. He succumbed to sepsis from a decubitus. The tumor had spread in various directions but had adapted itself to conditions so there was no compression of vessels or organs enough to induce symptoms, although the bodies of the four adjoining vertebrae had softened. The details of the case and necropsy findings were published at the time, July, 1913, and have attracted considerable attention. Roccavilla replies here to a number of questions asked or points raised by others, discussing the diagnosis of thymus tumors in general.

80. **Operative Treatment of Sagging Liver and Gallstones.**—In Francini's patient the sagging liver was part of a general tendency to ptosis of the viscera that had developed after repeated pregnancies at brief intervals. After a period of mild local pains, they became intense and radiated to the shoulder. The liver was fastened in place by Jeannel's technic, after which the gallbladder was opened to remove the gallstones and the lips of the incision were sutured to the wound. By this means all danger of infecting the new supports of the liver was avoided while the gallbladder supplied additional support.

Brazil-Medico, Rio de Janeiro

March 22, XXIX, No. 12, pp. 89-96

81 Brazilian Nematelminth Worms. (Revisão dos acantocephalos brazileiros. I fam. Gigantorhynchidae Hamann, 1892) A. Neiva.
82 Facultative Blood-Sucking Power of Brazilian Bug. (Sobre o hematophagismo do Apiomerus Nigrilobus—Stal.) A. Carini and J. Maciel.
83 *Chorea in Pregnant Women. (Chorea gravidica.) O. Ayres. Commenced in No. 12.

April 1, No. 13, pp. 97-104

84 Echinococcus Disease in Rio. (Da presença do cysto hydatico no Rio de Janeiro.) L. Travassos and O. D'Utra.
85 *Tartar Emetic Specific Treatment for Leishmaniosis; Three Cases. O. Torres.

83. **Chorea in the Pregnant.**—Ayres emphasizes that chorea in pregnancy is probably connected with some disturbance in the ductless gland system. The mortality is always high and the prognosis grows graver when it is accompanied by mental disturbance. He proceeds to compare three cases he has encountered with the data in the literature, and gives the details of his cases. The first patient was a woman of 27 and the chorea came on with a stormy onset and coma for several hours. The choreic movements and convulsions continued a progressive course, only transiently influenced by symptomatic treatment of all kinds, including magnesium sulphate, thyroid treatment, various sedatives, neosalvarsan and lumbar puncture. Abortion was early induced but made no difference in the clinical picture, and the chorea progressed to a fatal termination. The woman had been previously healthy except for a tendency to constipation. The Wassermann was negative as likewise examination for gonococci.

The second patient, 18 years old, was also previously healthy and the pregnancy was only of one month's standing. The acute chorea proved fatal the ninth day. The necropsy findings are related in detail, but nothing was found that threw any light on the case. The third patient was 23, and she had noticed the choreic movements almost from the first after conception. At the fourth month they had become so violent she entered the hospital where the uterus was emptied after failure of all other treatment to relieve, and the chorea ceased at once. A year or two later she passed through a normal pregnancy without any return of the chorea or other mishap.

85. **Tartar Emetic in Leishmaniosis.**—Torres' three patients were men of 19, 40 and 43, and the leishmania ulcerations in the throat and nose were of several years' standing in all. A complete cure has been realized in one case under the intravenous injections of the antimony and potassium tartrate, and the others are well on the way to recovery. The first mentioned was given about forty injections, representing a total of 4.6 gm. tartar emetic. The leishman lesions in the mucous membrane are much harder to cure than those on the skin. The latter yield promptly to this treatment. It has no action on syphilis, and the measures found useful in syphilis have no effect on leishmaniosis. An interesting illustration of this, he adds, was given in a recent case of leishmaniosis in a child with inherited syphilis. The manifestations of the latter subsided under mercurial treatment, leaving the leishmaniosis unmodified, and this subsided under the tartar emetic. The solution for injection must be made up fresh and the course commenced with small tentative doses. Cautious local applications may hasten the cure.

Semana Medica, Buenos Aires

March 18, XXII, No. 11, pp. 341-372

86 Principles of Biologic Psychology. J. Ingenieros.
87 Oculomotor Paralysis in Cuba. J. Santos Fernandez.

March 25, No. 12, pp. 373-408

88 Toxic Action of Certain Stains on Protozoa. (Toxicidad de los colorantes imino y fenolicos nitrados sobre algunas especies de protozoarios.) L. Guglialmelli and J. J. Carbonell.
89 Diego Ruiz, the Spanish Medical "Philosopher of Enthusiasm," 1882. (Notas de una personalidad de filosofo y de medico.) E. C. de Portocarrero.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 10, I, No. 15, pp. 1165-1256

90 Radiotherapy of Cancer. (Stralenbehandeling in de gynaekologie. III.) T. H. Van de Velde.
91 Experimental Variations in the Heart Rhythm. (Over de hartrhythmiek. II.) S. De Boer.

Hospitalstidende, Copenhagen

April 14, LVIII, No. 15, pp. 353-376

92 *Multiple Ligation of Varicose Vein. (Behandling af Varicer paa Underekstremiteterne efter Kuzmik-Shedes' Metode.) K. Secher.
93 Chronic Nonmalignant Tumor of Salivary Gland. (Kronisk Spytkirteltumor.) H. v. Thun.

92. **Ligation Method of Treating Varices.**—Secher has applied to four patients the technic introduced by Schede and Kuzmik, and extols it as simple and free from danger, while it takes comparatively little time and the outcome is excellent and permanent. It can be applied in the home or office, and is thus particularly useful for the general practitioner. Kuzmik has reported its application in 155 cases; in most of them the varices were extremely pronounced and of long standing. Under general anesthesia a silk suture thread or catgut is passed around under the vein, without exposing the vein, and this is repeated at intervals along the vein. The ends of each thread are then tied over a roll of gauze or rubber tube, and the patient stays in bed one or two weeks. Schede applies the catgut threads at 2 cm. intervals and removes them after two or three days and lets the patient get up with a bandage the eighth day. Kuzmik uses silk, at 5 cm. intervals, and leaves the threads unmolested for twelve days.

Hygiea, Stockholm

LXXVII, No. 6, pp. 289-354

94 *Cerebellar Symptoms in Myxedema. (Om lillhjärnssymptom vid myxödem.) M. Odin.

94. **Cerebellar Symptoms in Myxedema.**—Odin gives an illustrated description of a woman of 52, previously healthy and with healthy children, who had developed myxedema in the last ten years. The gait finally became slow and dragging, as likewise the speech, and certain groups of muscles displayed a tendency to catalepsy and other cerebellar phenomena. Under thyroid treatment of the myxedema the cerebellar ataxia and other symptoms promptly disappeared. Söderbergh has reported similar cerebellar phenomena in four cases, but Odin's was the only one in the group of five with what is called *mouvements démésurés.* All of them displayed pronounced catalepsy, contrasting curiously with the bright and intelligent mind in each case.

Nordisches medizinisches Archiv, Stockholm

Feb. 27, XLVII, Surgical Section No. 2. Last indexed April 3, p. 1202

95 *Torsion of the Testicle; Reposition. (Fall von Hodentorsion.) A. Prag.
96 *Deformity of the Kidney from the Surgical Standpoint. (Nierenmissbildungen.) E. Key.
97 *Treatment of Metapneumonic Empyema. J. Borelius.
98 *Operative Fixation of Spine; Twenty-One Cases. H. Waldenström.
99 Utilization of Scapular Musculature in Treatment of Old Pleural Empyema. N. Hellström.
100 *Transpleural Resection of Cancerous Esophagus; Two Cases. F. Bauer.
101 Primary Localization and Mode of Spread of Tuberculous Process with Chronic Blood-Borne Tuberculosis of the Kidney. G. Ekehorn.
102 Fibrous Ostitis of Frontal and Adjacent Bones. (Revision eines Falles von "Sarkom des Sinus frontalis.") A. Krogius.
103 *Stomach Disturbances in Connection with Chronic Inflammation of the Omentum. (Gastropathia epiploitica.) G. Ekehorn.

95. **Torsion of the Testicle.**—Löfberg has reported three cases compelling operative relief, but in the case related by Prag the testicle was merely untwisted back into place. The torsion must have been of 360 degrees. The young man had had a similar attack a few months before, sudden intense pain in the abdomen and scrotum coming on in the night. Just as he reached the hospital all the pain vanished, and nothing abnormal could be found. The patient has been warned to apply without delay for operative fixation if there is any further trouble in this line.

96. **Malformations of the Kidney.**—Key reviews the various types of malformations of the kidney that have been encountered, and emphasizes the necessity for bearing in mind the possibility of a deformity of the kidney.

97. **Metapneumonic Empyema.**—Borelius relates that 27 were cured by operative treatment, of the 34 cases of metapneumonic empyema in his service at Lund since 1908. In 21 cases of septic empyema, 16 were cured and 2 of 7 with

tuberculous empyema. Four recovered of the 5 in the group treated with thoracentesis alone; they left the hospital in good condition in from thirty to forty-five days. In 12 cases thoracentesis had to be supplemented by thoracotomy and 10 recovered, but this required from thirty-six to 230 days, averaging 107. The 13 who recovered out of 17 under primary thoracotomy were in the hospital from twenty-one to 120 days. In the 21 septic cases, recovery in 16 was not complete until after intervals up to 420 days, and 5 patients died. In his 8 cases of metapneumonic empyema last year, 3 were pure pneumococcus cases and some recovered after thoracentesis alone. The technic for the operation and the aftercare are important factors in the outcome and thorough and early draining is indispensable. The figures cited all testify in favor of primary thoracotomy as giving the best result on the whole.

98. **Autobone Fixation of the Spine.**—Waldenström has been applying Albee's transplant method of operative treatment of deformed spine from spondylitis, only he regards the fixation as the important point. In order to render the fixation firmer, Waldenström implants the bone in a way to take the place of the destroyed bone and support the weight of the body above. He straightens the spine first and seeks to have it and the tibia transplant fused into a solid, unbending, straight whole after the operation. He keeps the patient on his back in the same plaster bed in which the correction of the hump has been realized. Then a plaster corset is worn for two more months. Weight bearing should be very slowly and gradually permitted, not allowing strain enough to bend the bone implant. He gives the details of his operation which differs in a number of points from Albee's technic. The spine is now straight and firm in all but three of his 21 cases thus treated; in seventeen the course is complete and the results most gratifying.

100. **Transpleural Resection of Cancerous Esophagus.**—The tedious operations in the two cases were carried through successfully, but one patient succumbed to pulmonary embolism a few days later and the other to suppuration around a perforation in the esophagus. The necropsy showed that the operation itself had been a success. Bauer advocates operating as the last resort in every case. After an opening has been made into the stomach and the patient's strength brought up by good nourishment, the chest should be opened and, if there is any chance at all, the esophagus should be resected.

103. **Stomach Trouble Secondary to Chronic Inflammation of the Omentum.**—Ekehorn reports two cases and cites one published by Destot in which chronic inflammation of the omentum caused pain in the stomach region, independent of the meals, and vomiting after eating. The pains and cramps lasted about a half hour at a time and returned several times a day or with free intervals of a few days. These disturbances had dragged through several years in one case. In the second case the onset was more stormy and the troubles more serious and persistent. Immediately after eating there were stabbing pains, even after a small glass of milk. This patient was a man of 37 and operative relief was obtained after three months. There was a tender area above the umbilicus in both, but roentgenoscopy was negative and nothing was found to suggest an ulcer. In both the omentum showed signs of chronic inflammation, and both were entirely cured by resection of the omentum. The first patient, a married woman of 31, had vomited after every regular meal for eight years; there has been no vomiting since the operation, and no pains in either case. Certain signs in the second case suggested that the inflammatory process in the omentum might be traced to appendicitis, but nothing was found to explain it in the woman.

Ugeskrift for Læger, Copenhagen

April 1, LXXVII, No. 13, pp. 477-542

104 *Diagnosis and Treatment of Ulcer of the Lesser Curvature of the Stomach. (Ulcus curvaturae minoris ventriculi.) A. Borgbjærg. Commenced in No. 12.

105 Keratomalacia in Infants Fed on Buttermilk; Thirty-Five Cases in Seven Months. (Kærnemælksernæring og Keratomalaci.) H. Rønne.

April 8, No. 14, pp. 543-576

106 *Nutrient Enemas. (Rektalernæring.) V. Scheel and E. Begtrup.

107 Typhoid at Copenhagen in Last Fifteen Years. G. Behncke.

104. **Ulcer of the Lesser Curvature of the Stomach.**—Borgbjærg analyzes his experiences in 48 cases of pyloric ulcer, 13 of duodenal and 27 of ulcer in the lesser curvature, with special regard to the latter group in the total 88 cases. Thanks to roentgenoscopy, an ulcer in the lesser curvature is now readily diagnosed as a rule. In 14 cases of simple ulcer in the lesser curvature, periodical recurrence of the pains was unmistakable in 78.6 per cent., but there was no evidence of hypersecretion except in 14.3 per cent.; acidity was normal in 42.9 per cent., and below normal in 28. There was no pronounced retention of stomach content in any case, and the evacuation of the stomach was normal in 50 per cent. and only slightly retarded in 28.6 per cent. In 6 of the 14 cases there was vomiting but it occurred soon after eating and was of small amount, sometimes being only mucus. There had been hematemesis in 5 and melena in one case.

The most constant and characteristic symptom was pain in the cardia region sooner or later after eating. This pain seems to come on early when there is hypersecretion and late with subacidity. These data demonstrate that from the clinical symptoms alone it is impossible to determine the location of the ulcer or even that there is an ulcer. The disturbances were ascribed to everything but the right cause, and futile treatment had long been applied for the assumed neurasthenia, hysteria, colitis or gastroptosis. One or more of these affections may actually accompany and overshadow the ulcer. The patients grow more and more nervous as their general health is suffering from the ulceration, and the various measures applied fail to relieve their symptoms.

Localization of the pain in the lesser curvature region is instructive, as also tenderness at this point. In order to avoid suggesting this tenderness, he begins to apply pressure at a distance and gradually works up to the suspected point. Suspicious clinical findings become certainties when confirmed by the Roentgen rays. He found pronounced circumscribed pain on pressure in two-thirds of his 27 cases of ulcer in the lesser curvature, and in 71 per cent. of his 14 uncomplicated cases. This tenderness is particularly suggestive when it is to the left of the median line. In the 48 cases of pyloric ulcer, there was tenderness in 21, but always to the right of or on the median line, with one exception.

Adding his 27 cases to 27 from Pers' service, a radical operation was done in 20 of the 54, and the outcome seems to show that radical measures are more effectual while fraught with no more danger than conservative treatment. They sweep away all danger of cancer in the ulcer.

106. **Nutrient Enemas.**—Scheel tabulates the metabolic findings and other details in four out of sixteen cases thus investigated over several weeks on different types of nourishment by the rectum. The findings testify to the good absorption and utilization of suitable nutrient enemas, thus sparing the reserves in the body and supplying quite an essential part of the nourishment requirement. It was found that milk and eggs irritated the rectum and were not absorbed properly, not even when pancreas extract was given with them. The best results were obtained with meat amino-acids. The 10 gm. nitrogen were given with 50 or 75 gm. grape sugar in the course of the twenty-four hours fractioned in two or three enemas. About 250 c.c. of fluid was found the best amount for a single enema. The osmotic concentration was kept at about the same as that of the tissues, to avoid irritation. More than 25 gm. sugar should never be given at one time. He found the drop method impracticable for reasons he enumerates. The nutrient enemas were kept up for nearly three weeks. It is possible in this way to supply 400 or 600 calories daily. As the nitrogen balance is thus maintained, the reserves of fat in the body are drawn on for the balance of the calories required, and this fat loss can soon be made up again at the close of the course. All the patients had had hematemesis from a gastric ulcer. Most of the amino acids used were made in the hospital by long continued digestion of meat or milk by trypsin-erepsin.

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HISTORY AND EPIDEMIOLOGY OF TYPHUS FEVER

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There are medical historians who find evidence of the existence of typhus fever among the ancient Hebrews and their contemporaries, but this is a matter of conjecture. While this disease has long been known as morbus pauperum associated with want and famine, we must not infer that it is the only fever which develops and thrives among the needy and in times of scarcity of food and other privations. Poverty and overcrowding favor the development and distribution of many infections. Some of the cases reported by Hippocrates in his book on epidemics are certainly suggestive of typhus. The following is the report of a case, now believed to have been typhus, made by Hippocrates, as translated by Adams:

> In Thasus the wife of Dealces, who was lodged on the plain, from sorrow was seized with an acute fever, attended with chills. From first to last she wrapped herself up in her bedclothes; still silent, she fumbled, picked, bored and gathered hairs (from the covers); tears and again laughter; no sleep; bowels irritable, but passed nothing; when directed, *drank a little; urine thin and scanty; to the touch of the* hand the fever was slight; coldness of extremities. On the ninth (day) talked much incoherently, and again became composed and silent. On the fourteenth, breathing rare, large, at intervals; and again hurried respiration. On the sixteenth, looseness of the bowels from a stimulating clyster; afterwards she passed her drink, nor could retain anything, for she was completely insensible; skin parched and tense. On the twentieth much talk and again became composed; loss of speech; respiration hurried. On the twenty-first she died. Her respiration throughout was rare and large; she was totally insensible; always wrapped up in her bedclothes; either much talk or complete silence throughout. Phrenitis.

The great Athenian pestilence so well described by Thucydides was either typhus or the pneumonic form of the plague. Livy and Tacitus tell of many epidemics in the classical period of Rome. Some of these undoubtedly were epidemics of the plague, while the descriptions of others suggest typhus. The dark ages were so overshadowed by disease and superstition that medical records of value are almost wholly wanting. In the siege of Granada in 1489 no less than 17,000 of Ferdinand's soldiers died of a fever which was designated as "Tabardillo," on account of the spots appearing on the skin. This term is still one of the Spanish names for typhus. In the sixteenth century two Italian physicians, Fracastorius of Verona and Cardanus of Pavia, described typhus fever so plainly that there can be no doubt about the disease which then prevailed. In four years (1550-1554) more than one million people in Tuscany were destroyed by typhus. Fracastorius describes the disease as "Febris pestilens," and states that it was vulgarly known as "Lenticulae" or "Puncticula." He says from the fourth to the seventh day red eruptions appear on the arms, chest, and back. They resemble flea bites, only are somewhat larger. They also resemble lentils and from this comes the popular name. The most marked symptoms mentioned are great prostration, feeble pulse, injected conjunctivae, and low muttering delirium. Some are somnolent while others are excited and wakeful, while in still others these states alternate. The disease lasted from seven to fourteen days, rarely longer. The majority of those who were bled died and a supporting treatment proved best. Cardanus and other Italian physicians stated that many of the practitioners of the time mistook this disease for measles, and Massa of Venice wrote on the distinctions between the eruptions of this disease and those of measles and smallpox. About the middle of the sixteenth century this disease was widely prevalent in France and Coyttarus of Poitiers wrote a monograph on it, under the title "De Febribus Purparatis" and somewhat later Ambrose Paré, the distinguished surgeon, wrote of "febris pestilens" which was marked by eruptions resembling the bites of fleas or bed bugs.

Morbus Hungaricus appeared in the army of Maximillian II in Hungary in 1566, and soon spread over the greater part of Europe. Sennertus and others have left descriptions of this epidemic. The skin was marked by flea-bite eruptions. Headache was intense and followed by delirium. In some, the tongue became black, parotid abscesses developed and gangrene of the limbs occurred.

Under the title, "Febris maligna puncticularis seu peticularis," Castro of Verona (1580) pictured the symptoms. The pulse is small and weak; the tongue dry and black; the face and eyes greatly congested; delirium, followed by stupor deepening into coma; parotid abscesses in some, the eruption appearing about the seventh day and the disease continuing from fourteen to twenty days. Castro says that this disease was known to the French as "La Pourpre;" to the Italians as "Petecchie;" to the Spaniards as "Tabardillo," and to the Germans as "Fleckfieber."

During the sixteenth century typhus fever was so prevalent in the jails of England that the disease spread among the court officers when prisoners were brought before them for trial. This happened repeatedly and gave to court sessions the designation of "black assizes." The first of these of which record is left occurred at Cambridge in the thirteenth year of the reign of Henry VIII (1522). The justices, bailiffs, gentlemen and other persons in court were seized with a fever which proved fatal to many. The most notable report of a "black assize" is that at Oxford in the twentieth year of the reign of Elizabeth (1577). The prisoner was Rowland Jenks, a bookbinder and a Roman Catholic, who was charged with treason and profanity of the Protestant religion. He was sentenced to lose his ears. The trial was held at Oxford Castle, July 4. Several prisoners were brought into court in the course of the trial. The chronicle states that "an infectious damp of breath" spread through the room. "Above six hundred sickened in one night; and the day after, the infectious air being carried into the next village sickened there more than an hundred more." By the twelfth of August 510 persons perished. "The infection arose from the nasty and pestilential smell of the prisoners when they came out of the jail, two or three of whom had died a few days before the assize began." The disease was marked by loss of appetite, headache, sleeplessness, loss of memory, deafness and delirium, so that the victims behaved like madmen. The Catholics saw in this the scourge of God for the unjust punishment, and the Protestants attributed it to the "diabolical machinations of the Papists."

During the Thirty Years' War (1619-1648) the whole of central Europe was desolated by war, famine and pestilence. The nature of the epidemic is plainly shown by both medical and lay writers and its ravages were portrayed in both prose and poetry. One verse of a song runs as follows:

> Per omnes
> Burgundos et quas stagnans Arar irrigat urbes
> Insolita exarsit febris, quae corpora rubris
> Inficiens maculis (triste et mirabile dictu!)
> Quarta luce frequens fato pendebat acerbo.
> Pulsus erat minimus, tremulusque soporque
> Mens vaga, visque labens; lotium crassumque rubensque
> Interdum tenuae instar aquae.

In 1658, Morton states that England was one vast hospital filled with the victims of a fever with "maculae latae et rubicundae morbillis similes in toto corpore." The great plague of London (1665) was preceded, accompanied, and followed by typhus and some of the most eminent medical men of the time, notably Sydenham, frequently confounded plague and typhus in the reports of their cases. Under the title, "Febris Petechialis vera" Hoffmann of Halle (1700) gave an excellent account of typhus and pointed out its distinction from the plague, which he designated "Febris Pestilens." The eighteenth century saw no abatement of epidemics of typhus. This disease had long afflicted Ireland under the name of "Irish ague," but it was not until 1708 that permanent records of its ravages were made. From that time on for more than a century and a half Ireland was afflicted by one epidemic after another, just as fast as new generations supplied a crop of susceptible material. The historian has no difficulty in showing that each exacerbation was coincident with a period of great want and poverty, but this was a chronic condition of the Emerald Isle during this period. The people were oppressed by their rulers, divided among themselves, held in the grossest ignorance and fed on superstition. Most of those who had enough energy emigrated to foreign lands, thus impoverishing their native land of its best blood to such an extent that it has not yet wholly recovered. An account of one epidemic of typhus in Ireland is much like all others. Nothing to eat but potatoes; and an adult would devour ten or more pounds of these tubers each day in the vain attempt to supply his body cells with the minimum amount of protein demanded. Driven by hunger to sell the cow, furniture, and even his clothing, the Irishman and his family huddled together in rags and filth, while vermin fed on their bodies and simultaneously inoculated them with typhus. Murchison says: "In Dublin, the servants of the upper classes were not allowed potatoes, and bread was portioned out to them sparingly, few persons had more than a quarten loaf in the week. The poor pawned their clothes, and even their bedding for money to purchase food, and, as a natural consequence, it was common for several members of one family to sleep in the same bed." According to O'Connell, eighty thousand Irish died in 1740-1741 of famine and spotted fever and one-fifth the population of Munster perished. Writing of a nineteenth century epidemic of typhus in Ireland, Murchison says:

> Extreme distress ensued. The four pound loaf was sold in Dublin in 1817 for 1s, 9d; and the poor throughout Ireland are described as wandering about the country gathering nettles, wild mustard, and other weeds, to satisfy the cravings of hunger. . . . The probable population of Ireland at this time was, in round numbers, six million, and the number of sick was estimated at 737,000, or at about one-eighth. In Dublin alone there were about 70,000 cases, making about one-third the inhabitants.

Of the same epidemic Carleton wrote:

> People collected at the larger dairy farms waiting for the cattle to be blooded, so that they might take home some of the blood to eat mixed with a little oatmeal. The want of fuel caused the pot to be set aside, windows and crevices to be stopped, washing of clothes and person to cease, and the inmates of a cabin to huddle together for warmth. This was far from the normal state of the cottages or even of the cabins, but cold and hunger made their inmates apathetic. Admitted later to the hospitals for fever, they were found bronzed with dirt, their hair full of vermin, their ragged clothes so foul and rotten that it was more economical to destroy them and replace them than to clean them.

The roads were filled with infected vagrants and many a poor cottier not only divided what he had in alms, but by giving shelter to the wanderer introduced the infection into his humble home, while "the dogs of the gentry kept all beggars from their gates."

The last great Irish famine (1845-1848) was the occasion for the prevalence of relapsing fever and scurvy as well as typhus fever. This scourge was foreseen in the development of the potato blight and was mitigated somewhat by the repeal of the corn laws and by a change in the navigation laws permitting the carrying of food supplies in other than British bottoms. At that time Ireland lived almost exclusively on milk and potatoes. Although it produced more than enough grain to feed itself, even in these years of the potato blight, most of this had to be sent to England to pay the rents. Years before both Malthus and Cobbett had protested against a people trying to live so largely on potatoes. The former wrote as follows:

> When the common people of a country live principally on the dearest grain, as they do in England, on wheat, they leave great resources in scarcity; and barley, oats, rye and cheap soup and potatoes all present themselves as less expensive, yet at the same time wholesome means of nourishment, but when their habitual food is the lowest in the scale, they

> appear to be wholly without resource except in the bark of trees like the poor Swedes; and a great portion of them must necessarily be starved.

After this famine the Irish ceased to rely so largely on the potato, emigration to this country and Canada greatly increased, and "the population has steadily declined and the well being of the people steadily improved."

Before dismissing the subject of Irish typhus epidemics, I wish to add a quotation from Creighton, showing that the case mortality in this disease is higher among the robust and well fed than among the weak and hungry. "There appeared to be a scale of malignity in the fevers in an inverted order of the degree of misery. The most wretched had the mildest fever, the artizan class or cottagers had typhus fatal in the usual proportion, the classes living in comfort had typhus of a very fatal kind. This experience, however strange it may seem, was reported by medical observers everywhere with remarkable unanimity. One says that six or seven of the rich died in every ten, others say one in three. Forty-eight medical men died in 1847 in Munster, most of them from fever; in Cavan County seven medical men died from fever in twelve months and three more had a narrow escape of death; two of the three physicians sent by the Board of Health to the coast of Connemara died of fever. Many Catholic priests died, as well as some of the established Church Clergy; and there were numerous fatalities of the resident gentry and among others who administered the relief. Yet a case of fever in a good home did not become a focus of contagion; the contagion came from direct contact with the crowds of starving poor, their clothes ragged and filthy, their bodies unwashed, and many of them suffering from dysentery. The greater fatality of fever among the richer classes (of course, with a much smaller number of cases) has been a commonplace in Ireland and is remarked by the best writers."

Creighton in his valuable "History of Epidemics in Britain" has shown some interesting facts concerning typhus in England during the eighteenth century. I will follow his facts but will draw my own conclusions.

During the half century from 1715 to 1765 England was most prosperous financially. Monied men built up great fortunes and the necessities of life were abundant and cheap. With two or three exceptions the harvests were rich and grain was exported in great quantity. Historians state that under the first two Georges there was general prosperity. Even Adam Smith speaks of "the peculiarly happy circumstances of the country during the reign of George II (1726-1760). Hallam speaks of this period "as the most prosperous that England had ever experienced." Lecky says:

> All the evidence we possess concurs in showing that during the first three-quarters of the century the position of the poor agricultural classes in England was singularly favorable. The price of wheat was both low and steady. Wages, if they advanced slowly, appear to have commanded an increased proportion of the necessaries of life, and there were all the signs of growing material well-being. It was noticed that wheat bread, and that made of the finest flour, which at the beginning of the period had been confined to the upper and middle classes, had become before the close of it over the greater part of England the universal food, and that the consumption of cheese and butter in proportion to the population in many districts almost trebled. Beef and mutton were eaten almost daily in the villages.

Johnson wrote:

There every bush with nature's music rings
There every breeze bears health upon its wings.

However, there were even at this time some who saw beneath the surface of abundance and prodigality. An economist, Rogers, pointed out that the prosperity was all on the side of the ruling classes and the capitalists, while the laborers were in "irremediable poverty and without hope." Their wages were artificially fixed by the quarter sessions and they were kept "in a condition wherein existence could just be maintained."

Creighton writes:

> But the Eighteenth Century, even the most prosperous part of it, from the accession of George I to the beginning of the Industrial Revolution in the last quarter or third of it, was none the less a most unwholesome period in the history of England. The health of London was never worse than in those years, and the vital statistics of some other towns, such as Norwich, are little more satisfactory.

In 1782, White wrote of the fever in London:

> The annual deaths under the old regime exceeded by a good deal the annual births; in the seven years, 1728-35, according to the figures in the parish registers, the burials from all causes were 3,488 and the baptisms 2,803, an annual excess of 98 deaths over the births in an estimated population of 10,800 (birth rate 37 per 1,000, death rate 46 per 1,000).

Creighton says:

> The mean annual deaths were never higher in London, not even in plague times over a series of years, the fever deaths keeping pace with the mortality from all causes, and, in the great epidemic of typhus in 1741, making about a fourth part of the whole. The populace lived in a bad atmosphere, physical and moral.

It is stated that the consumption of alcohol in London amounted to six gallons per head per annum. A duty of 20 shillings per gallon did not prevent the poor from getting it, and large quantities of gin were smuggled in from Holland. In 1726 the College of Physicians presented this matter to the House of Commons with the following statement:

> We have with concern observed for some years past the fatal effects of the frequent use of several sorts of distilled spirituous liquor upon great numbers of both sexes, rendering them disease, not fit for business, poor, a burthen to themselves and neighbors, and too often the cause of weak, feeble and distempered children, who must be, instead of an advantage and strength, a charge to their country.

The poor in London were crowded into small quarters. In 1737 one house was found to contain eleven married couples and fifteen single persons. A tax was levied on each window in the house and each window in the cellar, stairway and outhouse was counted and skylight included. "No window or light shall be deemed to be stopped up unless such window or light shall be stopped up effectually with stone or brick or plaster on lath."

Debtors were thrown into prison where some remained for years and if they had any comforts in the prison they had to pay for them. Jailers grew rich out of the necessities of their wards. Those unable to pay were crowded into unbelievably small quarters. The first commission to inquire into these abuses reported:

> George's ward, sixteen feet by fourteen and about eight feet high, had never less than thirty-two in it all last year and sometimes forty; there was no room for all to lie down, one-half the number sleeping over the others in hammocks; they were locked in from 9 p. m. to 5 a. m. in summer, longer in winter, and as they were forced to ease nature within the room, the stench was noisome beyond expression.

It is a matter of common knowledge that the work of prison reform in England at the time of which we write was due largely to the efforts of John Howard and his work was begun in 1773.

While the great landowners accumulated wealth, the poacher who snared a rabbit was sent to jail or deported. The condition of the poor was hopeless and the best blood of England flowed willingly or unwillingly into the United States, Canada and Australia. However, typhus often pursued the poor emigrant in his flight by sea and it is said that one-third the immigrants to America in the eighteenth century died during or soon after the voyage. It is well known that the fatality from ship fever continued through the early part of the nineteenth century. During the American War (1774-1780) the number of British seamen raised was 175,990, the number of those who died of disease was 18,545, and the number killed was 1,243.

It is interesting to note that during the eighteenth century English physicians for the most part were not much concerned with the poor and many of them saw but little typhus, while a colleague busy among the poor saw much of it. A Dr. Moss, writing of diseases in Liverpool, said that typhus was rare at a time when Dr. Currie was seeing more than 3,000 cases a year. In 1790 Liverpool was the second city in England, with a population of 56,000, while that of London was estimated at 800,000. According to Currie 7,000 of the people of Liverpool lived in cellars and 9,000 more in back houses with small courts and with narrow passages to the streets. In ten years (1787-1796) 31,243 cases of fever were registered, an average of 3,124 per year. In the last quarter of the eighteenth century Chester was regarded as the most desirable residence city in the kingdom. Within the walls, it had a population of about 3,500 and from 1764-1773 the death rate was only 17.2 per 1,000, but the poor lived outside the walls and Haygarth describes the condition as follows:

> The houses were small, close, crowded and dirty, ill supplied with water, undrained, and built on ground that received the sewage from within the walls. The people were ill fed and they seldom changed or washed their clothes; when they went abroad they were noisome and offensive to the smell. . . . In these poor habitations when one person was seized with the fever, others of the same family are generally affected with the same fever in a greater or lesser degree.

The second half of the eighteenth century saw the great manufacturing development of England by the employment of machinery. Now the poor were exploited by the manufacturer. The houses occupied by the operatives are said by Ferrier to have been dirty, without ventilation, and with the beds almost touching. "As soon as one poor creature dies or is driven out of his cell, he is replaced by another, generally from the country, who soon feels in his turn the consequences of breathing infected air." The only voices heard in behalf of the poor were those of medical men, and in Manchester Ferrier pleaded for them in strong language:

> I have seen patients in agonies of despair on finding themselves overwhelmed with filth and abandoned by everyone who could do them any service. . . . The situation of the poor at present is extremely dangerous, and often destructive to the middle and higher ranks of society. . . . The poor are indeed the first sufferers, but the mischief does not always rest with them. By secret avenues it reaches the most opulent and severely revenges their neglect or insensibility to the wretchedness surrounding them.

It was the fact that typhus occasionally found its way into the midst of the rich, and, when it did, killed so many and so quickly, that they were compelled to recognize that the misfortunes of the poor were of concern to themselves. Finally in a half-hearted way, urged by physicians, growling about the wastefulness and improvidence of the laboring classes, driven by the occasional deadly outbreaks in their own ranks, the ruling classes began to provide special hospitals for the isolation and care of cases of typhus. The London fever hospital was established in 1802.

The epidemiologic history of Britain during the Napoleonic wars presents many points of interest. Food prices were high. For a time American markets were closed to British manufacturers. Still, the period (1803-1816) was comparatively free from typhus, so far as Britain was concerned. In peace the poor man's business is to serve the rich, clothe himself in rags, rear his family in a stye and eat nothing. In war he becomes a hero, the defender of his king and country. He is well clothed, well fed and all that is asked of him is that he die for his country if need be. The wife and children at home must be cared for because more soldiers will be needed.

Immediately after the declaration of peace (1816) typhus began to increase and within another year it took on epidemic proportions. The condition of the London slums of the time is shown by a Parliament report as quoted by Creighton:

> Calmel's Buildings, a small court near Portman Square, consisting of twenty-four houses, in which lived seven hundred Irish in distress and profligacy, neglected by the parish and shunned by everyone from fear of contagion. George Yard, Whitechapel, consisting of forty houses in which lived two thousand persons in a similar state of wretchedness.

In 1831 typhus became epidemic in England and continued its ravages for more than ten years. The destitution and sickness among the poor of Manchester in the latter part of this epidemic (1839-1841) formed the basis of the story of "Mary Barton" written by Mrs. Gaskell. The author dwells on the bitterness on the part of the poor.

> The most deplorable and enduring evil that arose out of the period of commercial depression to which I refer, was this feeling of alienation between the different classes of society. It is so impossible to describe, or even faintly to picture, the state of distress which prevailed in the town at that time, that I will not attempt it; yet I think again that surely in a Christian land, it was not known so feebly as words could tell it, or the more fortunate and happy would have thronged with their sympathy and aid. In many instances the sufferers wept first and then cursed. Their vindictive feelings exhibited themselves in rabid politics. And when I hear, as I have heard, of the sufferings and privations of the poor, of provision shops where ha'porths of tea, sugar, butter and even flour were sold to accommodate the indigent—of parents sitting in their clothes by the fireside during the whole night for seven weeks together, in order that their only bed and bedding might be reserved for the use of their large family—of others sleeping upon the cold hearth stone for weeks in succession without adequate

means of providing themselves with food or fuel—and this in the depth of winter—of others being compelled to fast for days together, uncheered by any hope of better fortune, living, moreover, or rather starving in a crowded garret or damp cellar, and gradually sinking under the pressure of want and despair into a premature grave; and when this has been confirmed by the evidence of their careworn looks, their excited feelings, and their desolated homes—can I wonder that many of them, in such times of misery, and destitution, spoke and acted with ferocious precipitation?

In 1847-1848 there was a revival of typhus, under the name of "Irish Fever," in England. The last epidemic in England occurred in 1863-1864, and was in part due to the "cotton famine" resulting from the civil war in our own country. Since that time typhus has gradually decreased in Britain, but has not entirely disappeared.

From the fact that I have dwelt on typhus in Britain, it must not be inferred that it was unknown or was less prevalent on the continent of Europe during the seventeenth, eighteenth and nineteenth centuries. It was constantly present and assumed epidemic proportions of varying intensity in diverse places at different times. No European nation has been wholly free from it and it has continued to develop epidemics, especially in Austria and Russia. The present war has developed the conditions most favorable to its dissemination and I shall not attempt to predict the part it may play in the savage struggle now going on.

Taking Europe as a whole, the period from about 1670 to about 1850 may be considered as the typhus age. This does not mean that this disease did not exist before this period or that it ceased with the close of it. Neither assumption would be true, but before that time typhus was overshadowed for many centuries by the more deadly plague. Still it is a question if even at that time typhus did not kill more than the plague. The former was constantly present while the latter lapsed from time to time apparently on account of lack of susceptible material. Even during the typhus age other deadly infections, as smallpox, tuberculosis, diphtheria, etc., aided in rolling up heavy mortality lists. A complete history of typhus would be a valuable contribution to human knowledge and should be studied by statesmen and all interested in the welfare of the race, as well as physicians. There is certainly one great lesson which it teaches and that is that the health conditions of the poor are of interest to all. No nation can be great so long as its laboring classes live under unhygienic conditions. Typhus impoverished Europe not only by its high mortality but by the great emigration from its shores, leaving the degenerate to beget its generations.

Before leaving the history of typhus in Europe, I wish to quote the definition of the disease given by the greatest English authority of the nineteenth century, Murchison:

> A disease attacking persons of all ages generated by contagion, or by overcrowding of human beings, with deficient ventilation, and prevailing in epidemic form, in periods or under circumstances of famine and destitution. Its symptoms are: more or less sudden invasion marked by rigors or chilliness; frequent, compressible pulse; tongue furred and ultimately dry and brown; bowels, in most cases, constipated; skin warm and dry; a rubeoloid rash appearing between the fourth and seventh days, the spots never appearing in successive crops, at first slightly elevated, and disappearing on pressure, but, after the second day, persistent, and often becoming converted into true petechiae; great and early prostration; heavy flushed countenance; injected conjunctivae; watchfulness and obtuseness of the mental faculties, followed at the end of the first week by delirium, which is sometimes acute and noisy, but often low and wandering; tendency to stupor and coma, tremors, subsultus, and involuntary evacuations, with contracted pupils. Duration of the fever from ten to twenty-one days, usually fourteen. In the dead body no specific lesion; but hyperemia of all the internal organs, softening of the heart, hypostatic congestion of the lungs, atrophy of the brain, and oedema of the pia mater are common.

Typhus fever became epidemic in Mexico soon after the conquest (1530) and has continued in endemic form with occasional severe exacerbations to the present time. According to Liceaga the second recorded epidemic occurred in 1545 and the third in 1575. In 1736-1737 the disease is said to have killed 192,000. During the nineteenth century there were many exacerbations, the most extensive of which was in 1861. At the present time typhus is common in Mexico.

Importations of typhus by immigrants into this country have been constant and it is probable that at no time have our large cities been wholly free from it, but in most instances it has been limited to recently arrived immigrants and those directly in contact with them.

Doty says: "Out of 439 cases of typhus fever which occurred in New York during 1892-1893, 434 were removed from the poorer tenement and lodging houses, principally the latter."

In the records of the Civil War 1,723 cases with 572 deaths are reported under this name, but the diagnosis of many of these were questioned by the best medical officers, such as Woodward and Clymer. No cases were reported by Confederate officers. It is certain that typhus did not play any marked part in the mortality of that war.

THE TRANSMISSION OF TYPHUS

In 1909 Nicolle, stationed in Algiers, made two notable discoveries concerning the transmission of typhus fever. In the first place, he induced the disease in the chimpanzee by injecting the blood of patients and in like manner he transferred the disease from the chimpanzee to the macacus monkey. He was not able to transfer the disease in this way directly from man to monkey, but could do so indirectly through the chimpanzee. This suggests that the virus is increased in intensity by passage through the chimpanzee. In the second place, Nicolle succeeded in transmitting typhus from monkey to monkey by the bite of the body louse. Typical eruptions were secured in the chimpanzee constantly, but not uniformly in the monkey.

The fact that typhus is transferable by the bite of the body louse has been confirmed by Anderson and Goldberger, Ricketts and others. This renders it desirable for us to know as much as possible concerning the life history of this parasite. Shipley of Cambridge, England, has recently made studies along this line and I follow him principally in the following statements. The body louse (*Pediculis vestimenti*) is somewhat larger than the head louse and carries longer antennae. The male is about 3 mm. long and 1 mm. broad. The female is about one-tenth larger. Its color is said to vary with that of the people on whom it feeds, black, brown, and with different shades of grayish white. It does not move about over the surface but is always attached to the inner side of the underclothing. Even in feeding, it remains attached by at least one of its six legs to the clothing. When a lousy person is stripped, no lice can be found on him, but the inner side of the underclothing may be alive with them. When grown for the purpose of study, they must be permitted to attach themselves to bits of flannel and these must be brought into contact with the skin and the lice allowed to eat twice a day. They take hold promptly and feed greedily but never detach themselves from the flannel. The female after pairing begins to deposit eggs or nits at the rate of about 5 per day. These hatch after periods which vary markedly with the temperature. Cold delays hatching, but even freezing does not destroy the nits. Under favorable conditions the larvae emerge about the sixth day, and the larvae immediately begin to feed. Body lice seem not to be hardy and soon die unless they have frequent opportunity of feeding, but the clothing may carry nits quite indefinitely and these may hatch when the conditions become favorable. The newly hatched do not survive more than thirty-six hours without food. The lice are easily killed by gasoline or benzine or by turning the underclothing inside out and carefully applying a hot iron. Special attention should be given to the seams. Boiling quickly destroys both the insects and their eggs. It will be seen that as simple as these requirements are in ordinary life they are quite impracticable to the soldier in the trenches, especially when he has no change of underclothing. It is said that this parasite feeds only on dirty people and that it will not infest those who wear silk; but the soldier must be dirty, sometimes at least, and he is not supplied with silk underwear. Gasoline and benzine cannot be used by the soldier on account of their ready inflammability. A dilute solution of lysol or cresol soap made into a lather is applied to the inside of the clothing and left there to dry. Physicians and nurses in caring for typhus patients are exposed to great danger and the death rate among them has always been high. In recent years more than one medical man has contracted typhus in trying to solve its etiology and of the six American physicians who have recently studied typhus fever in Mexico three have contracted the disease and two have died—Conneff of the State University of Ohio and Ricketts of the University of Chicago. These are names now added to the martyr roll of science. Of Ricketts, his teacher and friend, Hektoen, has deservingly said:

> Those near him know that he fully understood the dangers to which he would be exposed and the risks he would run. He decided he would take those risks, meet the dangers with all possible means of prevention, and do the work that would come to his hands. And so he made the great sacrifice and gave all that a man can give to his fellow men.

Other American medical men and nurses have given their lives in the combat with this disease in desolated Serbia and others still are there and elsewhere in war-scourged Europe, seeking not to destroy but to save lives, fighting under the great battle flag of humanity and science.

Quite independently of the work of Nicolle, Anderson and Goldberger, Ricketts and Wilder, Conneff and others studied the etiology of typhus in Mexico. They found that the disease could be transmitted from man to the lower monkeys, without passage through a chimpanzee, that the virus in the blood is removed by filtration through porcelain, that one attack in the monkey gives immunity and that Nicolle was right in his claim that the disease is transmitted by the body louse. All attempts to transfer the disease by fleas and bed bugs have failed, while those with the head louse (*Pediculis capitis*) have not given uniform results.

For some years Brill has observed a peculiar disease in the wards of Mount Sinai Hospital, New York, and up to the present time he has records of about three hundred cases. Brill has described this disease as follows:

> An acute infectious disease of unknown origin and unknown pathology, characterized by an incubation period of from four to five days, a period of continuous fever, accompanied by intense headache, apathy, and prostration, a profuse and extensive erythematous maculo-papular eruption, all of about two weeks duration, whereupon the fever abruptly ceases either by crisis within a few hours or by rapid lysis within three days.

Anderson and Goldberger have shown that Brill's disease is typhus fever by injecting the blood of patients into monkeys and thereby establishing immunity to typhus.

Nicolle has reduced typhus in Tunis from 838 cases in 1909 to 22 cases in 1912. The only measure employed consists in freeing the people of lice.

THE ORGANISM

Plotz has isolated the organism and with Olitsky and Baeher has shown by complement fixation and agglutination tests that he has, most probably, found the infecting agent. In the agglutination tests only positive reactions in dilutions 1:50 were considered.

> Of twenty-four cases tested before the crisis all were negative except two which were tested one day before the crisis, both of which had a titre of 1:100. Of ten cases tested on the day of the crisis, three were positive and seven negative. After the crisis, thirty-eight cases were studied, 92.6 per cent. of which were positive. Agglutinins have been demonstrated as late as five months after the crisis. Of a very large series of control cases, no case gave a reaction in a dilution above 1:50, except three cases in which the occurrence of a previous attack of typhus fever could not be excluded. In these cases the reactions varied from 1:100 to 1:200. Control studies made by testing the serum of typhus cases against various other organisms were negative.

The opsonic index increases at the crisis and remains high in the convalescent stage.

> The organism is a small gram-positive bacillus, from 0.9 to 1.93 microns in length, the breadth being from one-fifth to three-fifths of the length. It is not acid-fast, has no capsule, and polar bodies can be demonstrated by appropriate methods. When first isolated, it grows only anaerobically, but after a time it can be grown aerobically.
>
> Intraperitoneal inoculation of a pure culture of the organism into guinea-pigs produces a rise of temperature in from twenty-four to forty-eight hours, the temperature remaining high for four or five days, and then dropping by crisis. This corresponds to the reaction seen in guinea-pigs after inoculation with defibrinated blood from typhus fever patients, except that the incubation period is shorter. Serum from a convalescing typhus patient has bactericidal properties against the organism obtained from Brill's disease and typhus fever.

Diseases with Highest Mortality.—According to the 1913 report of the Census Bureau, nine diseases cause more than half the deaths in the registration area comprising 65 per cent. of the population of the country. The diseases and number of deaths are as follows: tuberculosis, 93,421; heart diseases, 93,142; pneumonia, 83,778; nephritis, 65,106; diarrhea and enteritis, 57,080; cancer, 49,928; cerebral hemorrhage, 47,220; diphtheria, 11,920, and typhoid, 11,323.

HYPERTONIC SALT AND ALKALI SOLUTION IN SALVARSAN ANURIA *

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A man aged 45 had an aneurysm of the thoracic aorta extending from the diaphragm upward. The diagnosis was based on the character and distribution of the pain, the existence of cardiac hypertrophy with a peculiarly metallic aortic closure, a history of lues, a positive Wassermann reaction in the blood, and a roentgenogram. No other explanation of the symptoms was found in spite of an exhaustive study.

This patient had been treated with iodids and mercury, and had at first improved, but later suffered excessively from pain. He had then been given salvarsan. Within eight days he received three doses of 0.3, 0.3 and 0.4 grams respectively of old salvarsan. Forty-eight hours after the last one he felt ill and had a temperature of 99 F. During the day this rose and at 8 p. m. it was 102. He then complained of headache and slight nausea. The bowels had not moved. He grew very thirsty and drank water freely, but until noon of this day he had passed only 200 c.c. of urine. The urine was dark and contained a trace of albumin. After 1 o'clock he passed no urine at all. Examination revealed no palpable edema and no demonstrable ascites. He was taking in water and putting little out, still this water was not palpably accumulating in superficial regions. A tentative diagnosis was made of salvarsan poisoning.

Arsenic is one of that group of substances whose effects on the tissues and on the metabolism as a whole closely resemble that of tissue or general asphyxia. In respect to its effects on the structure of the tissues and on their metabolism, it belongs in the same general category with phosphorus, chloroform, hydrazin, and a long list of narcotic drugs. These all produce, in different degrees and admixtures, cyanosis with increased blood and tissue acidity, cloudy swelling and fatty infiltration of the cells of the viscera, especially of the liver and of the kidneys, but to a less degree of all cells. This parenchymatous degeneration goes on in the case of some of these drugs to the point of necrosis. A tendency to multiple hemorrhage is common. The nature of the changes in salvarsan poisoning has been studied extensively and is too familiar to require description here. Swelling, due to the imbibition of water by the parts most affected, would in the present case have accounted for the obvious water retention without tangible subcutaneous edema, and it was thought probable that the liver was swelling, the kidneys swelling, and perhaps also the brain and other viscera. As a matter of fact, the edge of the liver was easily palpable, soft and somewhat tender. The urine had contained albumin prior to its stoppage, and, as stated, the patient complained of headache and a little later became mildly delirious, all of which symptoms and signs were in keeping with the presumption of a liver, kidney and brain swelling or edema.

The relationship between asphyxia of a tissue and the rate at which acids accumulate in such a tissue is well established. The survival formation of lactic acid in a muscle which is immersed in an atmosphere of hydrogen and its rapid disappearance in an atmosphere of oxygen has been measured and timed with faultless precision by Fletcher and Hopkins. The great increase in the rapidity of lactic acid formation in surviving muscles when chloroform vapor is allowed to surround them has also been shown by the same writers, and the increased output of lactic acid in the urine, together with an actually increased hydrogen ion acidity in the blood, has been repeatedly demonstrated in asphyxias of various sorts and specifically following intoxications with narcotic drugs, phosphorus, arsenic and other members of that group whose characteristic tendency is to check cell respiration.

The power of acids when added to protein colloids so to alter these substances that they swell with the imbibition of water has been emphasized by the work of M. H. Fischer, and the power of acids when introduced into the tissues of the body to cause swelling, water retention, cloudiness of the cells, in short, edema, has been regarded by him as a phenomenon of the same nature as the swelling of protein gels in the test tube. That drugs of the group named do produce both acid, secondary to asphyxia, and edema of the parts where the action is most intense, is common knowledge.

Fischer's proposal to meet such conditions by bringing alkali into the tissues to neutralize any excess of acid which may still be there in neutralizable form, and simultaneously to bring into them sufficient quantities of a suitable neutral salt to dehydrate the neutral but still swollen tissue colloids, has been tested in this laboratory by E. A. Graham in experimentally produced chloroform intoxication in animals. Graham determined the doses of chloroform which, when given to animals of certain weights, always produced the severe symptoms of late chloroform poisoning, including the characteristic central lobular necrosis in the liver, along with edema, fatty infiltration, etc. When in animals of the same weight the same dose of chloroform was given and then followed by a suitable intravenous dose of hypertonic sodium chlorid with sodium carbonate in the form known as Fischer's solution, the necrosis was modified or failed entirely to appear.

Since chloroform and arsenic (hence salvarsan) are, as stated, closely related in their effects on the tissues and on the metabolism, the case mentioned above seemed an appropriate one in which to try the benefits of a salt alkali therapy.

Accordingly the patient was given 200 c.c. of Fischer's solution by bowel and two hours later the dose was repeated. This was at 9 p. m. The second dose was given at 11 p. m. It was also ordered that the patient take no food or any drink except lemonade to which sodium bicarbonate had been added until there was no longer any effervescence. The purpose of this was to provide that no fluid should be taken into the body without containing a suitable concentration of salt (in this case chiefly citrate) to carry it through, or, in other words, to make it diuretic for a normal individual, thus lessening the chance of vitiating the effect of the supertonic solution by bowel with a large quantity of subtonic solution by mouth, to do which, of course, would be equivalent to making up a supertonic solution and then promptly destroying its supertonicity by dilution before it was given. The bicarbonate was added merely for consistency to make the fluid taken by mouth alkaline rather than acid. As a matter of fact, the increasing nausea culminated in vomiting at about 10 o'clock, after which the patient slept for a

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* From the Otho S. A. Sprague Memorial Institute Laboratory of Clinical Research, Rush Medical College.

time, so that little of the lemonade was taken. At about 10:30 the nurse reported the appearance of a florid erythematous rash over the face, neck and trunk.

At about 3 a. m., or four hours after the second salt alkali enema, there was a watery stool, and the patient passed 45 c.c. of urine. Between 6 and 7 a. m. he passed 120 c.c. more. A third injection of 200 c.c. of Fischer's solution was given by bowel and retained. By noon the urine totaled 600 c.c. The delirium and headache cleared and the nausea disappeared. The temperature fell to 99.

For the next two days the patient was given fruit, fruit juices and soft cooked vegetables with rusk, butter and cream. He was allowed water *ad libitum*, with potassium citrate, 20 grains, four times a day, and sodium bicarbonate, 60 grains, three times a day. On the second day the urine totaled 990 c.c., and at the end of the week averaged 1,500 c.c., although during the week there were minor diminutions of urine and periods of malaise and headache. Ultimately there was complete recovery, and since this experience the patient has received three doses of 0.4 gram of old salvarsan by vein at three-week intervals with no apparent injury and with considerable ameliorations of the general conditions.

In view of the fact that this patient was constipated when treatment was begun, that he received 1 gram of old salvarsan within a week, that symptoms first appeared after a characteristic delay and then included fever, albuminuria and urinary suppression, nausea, vomiting, headache, delirium and an erythematous rash, this case is recorded as one of a salvarsan reaction sufficiently serious to occasion grave concern, in which a sharp turn for the better followed by ultimate recovery took place within a few hours after the administration by bowel of an alkaline hypertonic solution (Fischer's solution) with no other therapy. An isolated experience of this sort is considered as suggestive that a suitable application of the same general therapeutic principles might prove of value in intoxications of the type described.

104 South Michigan Avenue.

THE EFFECT OF ALTITUDE ON BLOOD PRESSURE

WITH MINOR MISCELLANEOUS OBSERVATIONS

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Just what normal blood pressures are, at sea level and elsewhere, is a matter concerning which there is the widest diversity of opinion. Goodman[1] states that the systolic readings for normal young adults are from 120 to 130, and the diastolic about 85. Making the usual allowance for posture, digestive action, psychic disturbances, etc., he thinks that a systolic pressure of more than 140 is pathologic. Harlow Brooks[2] mentions 120 as the usual systolic pressure, but finds that in persons whose occupations entail mental activities it normally ranges between 140 and 155. Janeway[3] states that "in the great majority of young males 100 to 130 mm. will be found," and names the normal diastolic pressure as from 65 to 110. Faught[4] states that 120 may be taken as the normal systolic pressure in the male at age 20, and adds 1 mm. for every additional two years of life. He believes that the question as to what variations from this are normal cannot be definitely answered, but suggests 17 mm. above or below, or a total variation of 34. Barach and Marks[5] conclude that in 90 per cent. of healthy young men the systolic pressure is below 150, and in 96 per cent. the diastolic is less than 100. These readings are presumed to have been made at or near sea level. Among others who have made careful study of the normal blood pressure, but with special reference to the effect of altitude, are Gardiner and Hoagland,[6] Schneider and Hedblom,[7] and Pomeroy.[8]

To the study of blood pressure in health I have to contribute only the readings made at Fort Stanton (altitude 6,230 feet) on fifty-four young adults, of whom seventeen were females. In this series, as in the others here reported, the auscultatory method was used and diastolic pressures read at the fifth phase or point where pulse sounds disappeared.

TABLE 1.—BLOOD PRESSURE IN THE HEALTHY

ALTITUDE, 6,230 FEET*

MM. Hg	Systolic	Diastolic	Pulse
From 10 to 20	0	0	2
From 20 to 30	0	0	6
From 30 to 40	0	0	16
From 40 to 50	0	0	20
From 50 to 60	0	1	6
From 60 to 70	0	3	4
From 70 to 80	0	17	0
From 80 to 90	0	26	0
From 90 to 100	0	5	0
From 100 to 110	5	2	0
From 110 to 120	9	0	0
From 120 to 130	25	0	0
From 130 to 140	12	0	0
From 140 to 150	2	0	0
From 150 to 160	1	0	0
	54	54	54

* As pointed out by Norris (Blood Pressure: Its Clinical Application), blood pressure as ordinarily referred to is the difference between atmospheric pressure and the *absolute blood* pressure and is purely relative. The absolute pressure, both *atmospheric* and arterial, is of course constantly lowered by increasing altitude.

Our average systolic reading in the healthy was 129 for men and 121 for women; the average diastolic reading was 84 and 82 for men and women, respectively. It must be said, however, that averages are not very helpful in arriving at conclusions on this subject. We are inclined to believe that the effect of altitude on normal blood pressure has been frequently overestimated and sometimes confused with that of other influences.

Opportunity to observe the effect of altitude on blood pressure in the tuberculous has been afforded by the fact that about 150 patients are transferred each year from the coast to this station. For more than a year manometer readings have been made at all the hospitals belonging to the Public Health Service immediately before transferring a patient. Uniform methods of observation were prescribed by the Surgeon-General in general order, and the minimum width of the cuff fixed at 10 cm. The technic at this station has been uniform and carefully followed. The two aneroid instruments in use, the Faught and the Tycos, respectively, were checked up with a mercurial instrument from time to time and with each other, and have been found constantly correct. The personal equations of the various officers engaged in taking readings have been compared. Only one systolic reading was made at the marine hospitals located at sea level. This is compared with the systolic pressures made on the four successive days after arrival at this station. Pressures are considered the same when one reading at this station has been found to coincide with one at sea level, and when one or more higher readings coincident with one or more lower were found. Obviously, the comparison cannot be exact. At present, systolic and diastolic readings are being made at the principal stations located at sea level for four days before transfer, and it is expected that a more exact comparison can be offered next year.

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[1] Goodman, E. H.: Blood-Pressure in Medicine and Surgery, Philadelphia, Lea & Febiger, 1914.

[2] Brooks, Harlow: New York Med. Jour., July 25, 1914.

[3] Janeway, T. C.: Clinical Study of Blood-Pressure, New York, Daniel Appleton & Co., 1904.

[4] Faught: Blood-Pressure from the Clinical Standpoint.

[5] Barach, J. H., and Marks, W. L.: Blood-Pressures, Arch. Int. Med., April, 1914, p. 648.

[6] Gardiner and Hoagland: Tr. Am. Climatol. Assn., 1905.

[7] Schneider and Hedblom: Am. Jour. Physiol., xxiii, No. 2.

[8] Pomeroy: Interstate Med. Jour., 1911, xviii, No. 7.

TABLE 2.—COMPARISON OF SYSTOLIC BLOOD PRESSURES AT SEA LEVEL AND AT FORT STANTON, 6,230 FEET

Patients Transferred from U. S. Marine Hospital at	Same	1 to 10 mm. Hg Higher	1 to 10 mm. Hg Lower	11 to 20 mm. Hg Higher	11 to 20 mm. Hg Lower	21 to 30 mm. Hg Higher	21 to 31 mm. Hg Lower	More than 30 mm. Hg Higher	More than 30 mm. Hg Lower
San Francisco....	16	14	4	9	3	6	0	3	3
New York.......	14	8	6	4	3	2	0	0	0
Chicago	9	5	3	1	0	0	0	0	0
Baltimore	1	4	2	6	0	2	0	0	0
Cleveland	3	4	2	0	1	1	0	0	0
Boston	1	0	6	0	0	0	0	0	1
Detroit	1	1	1	2	1	0	1	0	0
Other stations....	7	3	3	1	0	1	0	0	0
	52	39	27	23	8	12	1	3	4

TABLE 3.—MISCELLANEOUS OBSERVATIONS

Systolic mm. Hg	A With Hemoptysis	B Without Hemoptysis	C Far Advanced; Favorable Results	D Far Advanced; Unfavorable Results	E Far Advanced; Unfavorable Results: Dyspnea Marked
From 70 to 80..............................	0	0	0	1	0
From 80 to 90..............................	0	0	0	1	0
From 90 to 100.............................	1	5	2	8	11
From 100 to 110............................	19	14	8	17	22
From 110 to 120............................	11	9	19	13	9
From 120 to 130............................	4	9	8	3	1
From 130 to 140............................	4	5	3	0	0
From 140 to 150............................	3	1	2	0	0
From 150 to 160............................	1	0	1	0	0
	43	43	43	43	43

The psychic disturbance occasioned by a three or four day transcontinental journey ending in a stage ride of 8 miles is considerable. Patients arrive excited by the knowledge that here the last stand in the fight against their disease is taken. It is not surprising, therefore, to find that in some cases the blood pressure was found higher here than at lower altitudes, and this regardless of any effect altitude may have. Out of 169 cases, systolic pressures were practically the same in 118, slightly higher in 23, slightly lower in 8, considerably higher in 15, and considerably lower in 5.

The effect of altitude on blood pressure in the tuberculous does not appear to be great, and when due allowance is made for disturbing factors, there is nothing found in our observations to indicate that an altitude of 6,230 feet has any pronounced influence on this phenomenon in the ordinary case.

MISCELLANEOUS OBSERVATIONS

The effect of tuberculosis itself on blood pressure is too well known to require comment. Authorities seem to be in complete accord that hypotension always prevails in uncomplicated active disease. The classes of tuberculous patients included in Table 3 have been the subject of discussion in recent literature on blood pressure, and the observations are believed to be of some value. The number in each, forty-three, was so fixed because that was the number of patients having frank hemorrhage during the period of observation. It may be noted here that it is not practicable to study the effect of prolonged residence on blood pressure in the tuberculous. Such an attempt would resolve itself into a study of the results of treatment and the effect of improvement or loss on blood pressure.

A AND B HEMOPTYSIS

More than casual interest has been taken in hemoptysis at this station, owing to the large number of fatalities (10 per cent. of all deaths) occurring here from pulmonary hemorrhage. A report of fifty-six such deaths appeared in the *Public Health Reports*, No. 51, in 1910. In the present study of the correlation of blood pressure and hemoptysis, the systolic readings of those having pulmonary hemorrhage are compared with those of carefully matched cases free from hemorrhage. Both early and late cases are included in the series. In matching a hemorrhage case with a nonhemorrhage case, careful attention to details was given, and they are as nearly alike as possible in age, race, extent and duration of disease, in prognosis where the patients are still under treatment and in result where treatment has terminated. Patients with manifest complications were excluded from both classes. The readings are the average of those taken at the regular bimonthly examinations and are therefore not modified by the influence of hemorrhage. Nothing was found to support the contention of those who believe that most hemoptyses occur in those with high systolic pressure.

C, D AND E RESULTS

The systolic pressures of forty-three patients who died are compared with those of an equal number of patients with far advanced disease who made an apparent cure or an arrestment, and also with those of patients suffering from the effects of altitude. These men had been under treatment for about a year, although not all at the same time, and many readings were made on each, of which the average was taken for use in Table 3. Column C, on favorable results, contains the record of our best results of treatment, all patients referred to therein having confirmed an arrestment of disease by at least two months of continuous employment. Comparison with the readings of other observers shows no great variation from manometer readings in similar cases at sea level. There is apparent neither depression due to altitude, except possibly in Column E, where readings were made on those suffering from dyspnea, nor the elevation of blood pressure claimed by one or two observers to occur at 6,000 feet, and which they presumed to indicate the advantages of altitude in treating tuberculosis. It seems extremely doubtful whether moderate altitude has any pronounced effect on blood pressure in the tuberculous, except possibly in those whose circulatory apparatus is unable to accommodate itself to the increased strain thus put on it by adverse influence. Sufficient data are not yet available to determine which is cause and which effect in this phenomenon.

INDUCED PNEUMOTHORAX

The influence of induced pneumothorax on blood pressure has been studied on sixteen patients who have been treated by this method for about seven months. The effect of the excitement of operation itself was excluded by taking the manometer readings at another time. The readiness with which fallacious results in blood pressure may be obtained was exemplified when the readings of one set of observers were found to show a marked increase of blood pressure in all patients in this group. But when the readings of all the observers were averaged, it was found that this was due to that large variation in blood pressure found in some individuals without apparent cause. Taking all the readings, which extended for several months and in some instances more than a year before treatment by induced pneumothorax was instituted, it is found that there have been no important changes in the blood pressure of the individuals treated. In one there appears to have been a temporary increase and in another a temporary decrease during the first month of compression, both returning to the original readings after a few months. In two individuals there was a slight increase in blood pressure, which began soon after treatment was instituted and which has continued to the present time. This reached in one instance from 2 to 14 mm. Hg systolic pressure, and in the other from 6 to 18 mm. Hg.

The blood pressure in both right and left arms was observed in induced pneumothorax patients to determine the effect of the treatment. No greater difference in the two arms was found than is normal except in one case of incomplete compression, pleural adhesions being present, in which the readings in the right arm were 114 systolic, 98 diastolic, and in the left arm 132 systolic, 88 diastolic. This patient's right lung was the one compressed, and it seems not improbable that the nitrogen contained in the pleural cavity had some direct influence on the circulation on that side. Four months later, after reexpansion of the lung was nearly completed, the manometer readings on the right arm were systolic 120, diastolic 94; left arm, systolic 128, diastolic 86. No great importance is attached to the aberrant readings in this case, and it is our impression that in uncomplicated cases of induced pneumothorax, when compression is effected with the usual caution, no pronounced effect on blood pressure results.

ACKNOWLEDGMENTS

The blood pressure readings at sea level were made by the various officers of the Public Health Service stationed at marine hospitals belonging to this service. All the junior officers on duty at this sanatorium have assisted in the routine blood pressure measurements made here. Acting Assistant Surgeons William Keiller and F. S. Littlejohn made the special readings on the healthy and on those treated by induced pneumothorax, respectively.

INFECTIONS WITH HEMOGLOBINOPHILIC BACTERIA *

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The hemoglobinophilic bacteria comprise a rather large group of bacilli which grow only in an artificial medium containing hemoglobin. This group does not include the many bacteria that, while growing better in mediums containing blood or blood serum, will also grow in mediums not containing hemoglobin. Its representative organism and by far its most important member is Pfeiffer's bacillus (*B. influenzae*), which was discovered by Pfeiffer in the respiratory tract of patients afflicted with influenza during the great pandemic, in 1889-1890. Not only did he discover and isolate this organism at that time, but he definitely proved its hemoglobinophilic character, a property of bacteria hitherto unknown. In his classical paper[1] in which he reported these researches he also described other organisms differing in certain respects from the true influenza bacilli but similar in being hemoglobinophilic. These he called pseudo-influenza bacilli. Since then these pseudo forms, which have also come to be commonly referred to as influenza-like bacilli, have been found especially in the upper respiratory tract in a variety of diseases.

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* From the Department of Experimental Medicine, University of Illinois.

* Read at the meeting of the Chicago Society of Internal Medicine, March 22, 1915.

[1] Pfeiffer: Ztschr. f. Hyg., 1893, xiii, 357.

I have gone over my data which have accumulated on this subject during the last several years and have arranged it in tabular form (see table). The isolation of the bacilli was made on blood-agar plates, usually using human or rabbit's blood. Except the tonsils, the material examined was either the sputum or swabs of the pharynx.

Especial attention was given to the detection of this particular group of organisms in all the examinations. They were not made in the various clinical conditions because there was any reason to think an infection with hemophilic bacteria existed. Therefore they are not selected cases in any sense. The data, furthermore, was collected during a period of several years, no essential difference being noted from year to year; the presence of hemophilic bacilli therefore cannot be explained by assuming the existence of a possible seasonal epidemic of influenza.

It will be seen from the table that hemophilic bacilli are very common in different kinds of infectious diseases. Probably in all except the influenza meningitis cases, there is no good reason to look on them as primary infections, but simply as secondary invaders, which find a suitable environment in connection with lesions produced by other and usually more virulent organisms.

TABLE SHOWING OCCURRENCE OF HEMOPHILIC BACTERIA IN VARIOUS INFECTIOUS DISEASES

Disease	No. Cases	Hemophilic Bacilli Present	Per Cent. Positive
Influenza (grip)	40	7	17
Bronchopneumonia	26	10	38
Lobar pneumonia	12	4	33
Measles	23	13	56
Varicella	11	7	64
Pertussis	68	61	89
Pulmonary tuberculosis	5	3	60
Acute articular rheumatism	11	0	0
Epidemic meningitis	11	4	30
Influenza meningitis	7	7	100
Tonsil crypts	300	3	1
Normal throats	20	2	10
Total	534	121	23

In the forty cases of clinical influenza or grip, 17 per cent. of the examinations yielded hemophils. They comprise cases from epidemics occurring in two different years, each of which gave approximately the same results. Streptococci, pneumococci and *Micrococcus catarrhalis* were the principal organisms found, sometimes one, sometimes another, predominating; often the types were about equally mixed.

In pertussis they are present in nearly every case, some time during the course of the disease, usually after the paroxysmal stage sets in. They may remain in the throat for a considerable period of time after the symptoms disappear. In some cases the bacilli are very numerous and on the plates are in almost pure culture, while in other cases they are few. They may be persistently absent and then suddenly appear in enormous numbers and thus continue. Pneumococci and streptococci are nearly always found and not infrequently bacilli, *M. catarrhalis* and diphtheria-like organisms appear in the cultures in small numbers.

In measles they are common, especially in cases in which cough is a pronounced feature. *M. catarrhalis* was commonly found also. Varicella gave much the same bacteriologic findings as measles.

In lobar pneumonia, of course, the pneumococcus is as a rule the predominating organism in the sputum, while streptococci are usually present in small numbers. Influenza bacilli were present in the sputum four times in twelve cases examined. In one case it was interesting to note that even early in the disease (fourth day) these bacilli were present in typical pneumonic rusty sputum in numbers exceeding the pneumococci. In another case of a somewhat atypical pneumonia in which, however, pneumococci were obtained in the blood in pure growth, examination of the washed sputum on the fourth day of the disease gave 80 per cent. *M. catarrhalis* colonies and 20 per cent. pneumococcus colonies. No hemophilic bacilli were present. Subsequent examinations gave the same findings. Again, an elderly man became ill with symptoms of lobar pneumonia. The sputum at first was bloody and later became profuse and purulent. The clinical diagnosis of abscess of the lung was made. Examination of the washed sputum gave enormous numbers of hemophil colonies, chiefly in clusters around colonies of other bacteria. No pneumococci appeared in the plates. A few days later, death occurred. Postmortem examination showed lobar pneumonia with several abscesses in the lungs. Pus from an abscess gave pneumococci 60 per cent., streptococci 35 per cent., *Staphylococcus aureus* 5 per cent.; no hemophils. These cases are instructive as showing the variation in the bacterial flora not only in complicated cases, such as the last, but even in typical cases of pneumonia.

Only five cases of pulmonary tuberculosis were examined. Hemophils were found in the sputum in three of these. It has been observed by many that they are common secondary invaders in this disease.

In the epidemic meningitis cases they were found in the nose and throat four times in eleven cases.

In normal throats they are occasionally found. Swabs of the throat from twenty normal persons gave growth of influenza-like bacilli twice; they were present in small numbers.

In the tonsil examinations, all cultures were made on blood mediums from the depths of the crypts after the organ had been carefully incised and laid open. In all cases the tonsils were diseased to some degree and came from persons suffering from a variety of conditions. Forty-two were from patients with chronic joint disorders, ten from those with chronic nephritis, and forty from persons with endocarditis. Most of the remainder were removed because they were excessively hypertrophied, and came largely from children. Of the three hundred pairs of tonsils examined, in only three were influenza-like bacilli found, and then in small numbers and mixed with other bacteria. They were all from the group of cases of hypertrophied tonsils without other serious lesions. It is evident that by comparison with other conditions mentioned in the table, the hemophilic bacilli are rare inhabitants of the tonsillar crypts.

The total number of examinations made for the bacilli was 534, in 121 (23 per cent.) of which they were found. Excluding the tonsils, the total number examined was 234, in 118 (51 per cent.) of which they were present. The table shows they occurred fairly uniformly in the various diseases. It may be stated as generally true that they are found more frequently and in larger number in those cases in which there is involvement of the bronchi, especially the chronic cases with profuse expectoration, than in conditions like tonsillitis and acute rheumatism, in which the lesions are usually limited to the upper respiratory tract.

These bacilli are all very similar, indeed practically identical, and they also agree in all essential details with the description of Pfeiffer's bacillus as given by himself and by others. They differ from each other perhaps only in the matter of virulence, in which respect they seem to vary somewhat. As an illustration, I may refer to the organisms of this type already mentioned which not uncommonly cause acute meningitis in children. I have had an opportunity to study seven such cases,[2] all fatal, five of which were examined postmortem. They all occurred here in Chicago within the course of less than two years, at a time when an influenza epidemic did not exist. The onset in four was preceded by a "cold." The general course was that of an acute meningitis and did not differ essentially from the course of meningitis caused by pyogenic cocci. The hemophilic bacilli were found in immense numbers and in pure cultures in the spinal fluid and in the meninges and seemed to be identical with the true influenza bacillus, having, however, as a rule, a higher degree of virulence for animals. In rabbits after inoculation of relatively small doses they produce death by true septicemia, a result usually not possible to obtain with similar doses of Pfeiffer's bacillus.

In guinea pigs neither the hemophilic bacilli isolated from the respiratory tract of patients with the diseases noted in the table, nor those from the patients with meningitis are highly virulent. On the whole, the latter are slightly more virulent than the former, growth from two small agar-slants being sufficient, ordinarily, to kill in twenty-four hours after intraperitoneal injection. I inoculated the bacilli of this group into the human throat a number of years ago. The bacilli were isolated from the sputum of patients with whooping cough and swabbed into the tonsils and walls of the pharynx of a healthy young man who volunteered for this service. The inoculation was followed after forty-eight hours by definite symptoms of fever, redness of the throat with an abundant mucoid secretion and some cough. The symptoms lasted several days. In the abundant thick, tenacious mucus from the throat, influenza bacilli occurred in immense numbers and continued in the throat for at least four weeks. None was present in the throat before inoculation, as was shown by careful examination. I have also shown that bacilli of this type (hemophilic bacilli isolated from a case of bronchopneumonia) when injected in living cultures subcutaneously in the human, produced local swelling, redness and tenderness, and after several days an abscess containing yellow pus, in which the bacilli thrived and from which they were recovered in pure culture. These bacilli are therefore clearly pyogenic in character.

There can be no doubt, therefore, but that these bacilli may be to some degree pathogenic, and that while, like many other germs, they may be present without causing lesions, they are capable of producing reactions in the tissues and surely are not always harmless saprophytes in the human body.

This leads me to discuss further the relation of Pfeiffer's bacillus to epidemics of clinical influenza. In the literature there are numerous references to the occurrence of hemophilic bacilli in many infectious diseases and diseases of the respiratory tract. They have usually been referred to as influenza bacilli (Pfeiffer's bacillus), occasionally as pseudo-influenza organisms, and for the most part have been looked on as secondary invaders, except in influenza, in which the hemophilic bacilli have pretty generally come to be considered as the specific organism. Pfeiffer, in 1893, first announced this and since then an enormous mass of literature has accumulated, especially in Germany, much of which tends to substantiate the idea that his bacillus is the specific cause of this disease. If the evidence is carefully examined, however, it is found that in reality the specificity of this organism does not rest on any too sure foundation. It does not meet Koch's requirements. In many epidemics of influenza it is true they are found in the throat, being often present in large numbers, and they have been obtained from abscesses and numerous other lesions in the body. In postmortems the organisms have been found in large numbers, especially in the respiratory passages and the lungs. The pathogenicity of the bacillus for animals is low and the experiments of Pfeiffer with regard to the presence of toxins are not at all convincing. These facts are hardly sufficient to demonstrate beyond question that the organism is specific and that it is not merely a secondary invader.

It is interesting that the French, especially, have always been doubtful about the etiologic rôle of Pfeiffer's bacillus in influenza and they have presented many data in opposition to the view that it is specific for this disease. Elmassian,[3] in 1899, could not distinguish between organisms obtained from whooping cough, acute bronchitis, pulmonary tuberculosis and pneumonia. He considered them all identical with Pfeiffer's bacillus of influenza and said that it was not proved that this bacillus was the specific cause of grip. Sacquepee[4] studied a typical and very severe epidemic of grip in a garrison and found Pfeiffer's bacillus in only the latter part of the epidemic. At other times he found a gram-negative, motile, typhoid-like bacillus and also pneumococci and streptococci. He thinks that the influenza bacillus is not specific and that grip may not be due to any specific microbe. Bezançon and Israels de Jong[5] in an epidemic of grip studied the expectorations of twenty-five patients bacteriologically and found Pfeiffer's bacillus very rare. They called special attention to the *M. catarrhalis*, which was very common. They found pneumococci, streptococci, pseudodiphtheria bacilli, pneumobacilli and rarely staphylococci. They conclude that grip is not caused by Pfeiffer's bacillus, but is due to a variety of organisms of exalted virulence. Kleinenberger,[6] in twenty-seven cases of influenza, found them present in only eight cases. The *M. catarrhalis* was present in nearly every case. Von Jaksch[7] has described a condition under the name of pseudo-influenza which is indistinguishable clinically from influenza, but which is not caused by the influenza bacillus. He concluded that it was due often to a streptococcus invasion, because of the large number of these organisms found. In some the cause could not be determined, but he was sure it was not due to influenza infection.

Investigation of the literature on this point, therefore, corresponds very well with the findings as given in the table. While it is undoubtedly true that in many epidemics of influenza Pfeiffer's bacillus is commonly found in nasal and oral excretions, it is equally true that epidemics and also sporadic cases occur in which the condition appears to be identical with influenza clinically, but in which Pfeiffer's bacillus only occasionally appears, and other organisms such as pneumococci, streptococci and *M. catarrhalis* occur very commonly and in large numbers. The most rational interpretation of these facts seems to be that there are a number of organisms which may give clinically the same picture and which may exist in the respiratory passages either in pure culture or occurring together. The fact that many cases indistinguishable clinically from influenza occur both in sporadic and epidemic form, not associated with the influenza bacillus, should be more widely known, for ever since the great epidemic of 1889-1890, almost every disease bearing any resemblance at all to influenza is assumed, without a bacteriologic examination, to be an influenza infection. Attention should be called also to the fact that smears of oral and nasal excretions are very unreliable in the diagnosis of this disease, and that to be sure of an influenza infection, cultures on blood-agar plates should be made.

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[2] Davis, David John: Influenzal Meningitis with Especial Reference to Its Pathology and Bacteriology, Am. Jour. Dis. Child., 1911, i, 249.

[3] Elmassian: Ann. de l'Inst. Pasteur, 1899, xiii, 621.

[4] Sacquepee: Arch. de méd. expér., 1901, xiii, 562.

[5] Bezançon and de Jong, Israels: Reviewed in Bull. de l'Inst. Pasteur, 1905, iii, 372.

[6] Kleinenberger: Deutsch. med. Wchnschr., 1905, xxxvi, 575.

[7] Von Jaksch: Berl. klin. Wchnschr., 1899, xxxvi, 425.

A further point of interest in connection with these bacilli is the fact that when grown on mediums in the presence of other bacteria, for example, streptococci, staphylococci, etc., they multiply more rapidly, their colonies are larger and their virulence for animals is increased. In other words, they clearly show to a marked degree the property of symbiosis.

Grassberger[8] called attention to the occurrence of very large influenza colonies in the immediate neighborhood of colonies of other bacteria, when grown with them on blood-agar plates. He worked especially with the staphylococcus, but the same effect is obtained with the influenza bacilli when grown with many other varieties. He observed influenza colonies as large as 4 mm. in diameter grown in this manner, which, in pure culture, are usually only 0.5 mm. or less. It is well known that influenza bacilli will live and develop through several generations on non-hemoglobin mediums, when grown in mixed cultures. Pfeiffer, before he discovered the use of hemoglobin for influenza culture, noted the growth of influenza bacilli on agar smears with sputum, but could not successfully transplant them on this medium in pure culture. M. Neisser obtained mixed cultures of *B. xerosis and B. influenzae* from conjunctivitis in measles and grew them through twenty generations on plain agar. Strains of hemophilic bacilli from throats of patients with measles, whooping cough and scarlet fever were in like manner carried through many generations in mixed culture. With dead *B. xerosis* or its extracts no growth occurred. He contends the presence of a living organism is necessary to produce this symbiotic effect.

Frequently in blood-agar plates inoculated from sputum or swabs, there is observed a conspicuous cluster of influenza-like colonies surrounding other colonies present on the plates, such as those of streptococcus, staphylococcus and pneumococcus. They are in this location not only larger but apparently more numerous than when farther away from foreign colonies. In order to obtain such an arrangement, it seems necessary to have a large number of influenza colonies in the plate and a few of the foreign organisms. When the former colonies are numerous, they are often so small that a hand lens is necessary to see them, but around the foreign colonies, as a result of some favorable influence, they become much larger and are more easily seen. This appearance may be easily obtained by sowing the blood-agar plate densely with the hemophilic bacillus and sparsely with some other organism, such as staphylococcus. In twenty-four hours the symbiotic relationship is usually evident.

The growth of several strains of these hemophilic bacilli was tested on various mediums and to each were added dead bacteria (staphylococci and streptococci) and filtrates of cultures. The results were uniformly negative. All the experiments performed indicated that symbiosis is dependent on the presence of the living organisms.

The symbiotic relation of other bacteria to influenza-like organisms is shown by the increased pathogenicity of the latter for animals. I have made a number of animal experiments to determine the effect of introducing another organism with the hemophilic bacilli, into the peritoneal cavity. This had been done with the influenza bacillus and the streptococcus by Jacobson, who found that the virulence of the bacilli could thus so be increased that much smaller doses of the bacilli alone would be sufficient to kill. He obtained both the bacilli and streptococci in the body fluids and heart's blood. In my experiments, non-virulent *Staphylococcus pyogenes aureus* was used; 2 c.c. of a broth culture of this organism produced no effect when inoculated into the peritoneal cavity of guinea-pigs. When 0.5 c.c. of this culture was inoculated with two blood-agar slants of the hemophilic organism, which, as above stated, rarely killed, death invariably followed in twenty-four hours or less. From the peritoneal exudate, both organisms were isolated. From the heart's blood, however, as a rule, only the hemophilic bacillus was obtained and no staphylococci. In two animals in which large amounts of staphylococci were injected, a few were obtained also in the heart's blood. After passing the bacilli in symbiosis with staphylococci through six animals, one blood-agar slant alone would kill an animal in twenty-four hours. Thus its virulence had been more than doubled. The effect of *M. catarrhalis* and an avirulent streptococcus on hemophilic bacilli was found to be very similar to that of staphylococcus.

The increased pathogenicity of this organism when growing with another organism is directly associated with the symbiotic phenomenon noted above and probably depends on the same factors. Under the conditions in which we find these bacilli in the throat, for instance, they are always associated with other organisms and therefore are thriving under circumstances which permit a manifestation of their greatest virulence and most luxuriant growth. It is also quite possible that the injurious products of such growth may be not only more abundant but even of a different and more toxic character and it would therefore be improper to draw conclusions from the data obtained by growing the organisms in pure culture.

Several other varieties of hemophilic bacilli, differing in certain respects and especially in relation to symbiosis have been described by a number of observers. Friedberger[9] found in the preputial secretions of dogs such an organism, a very minute, gram-negative bacillus which was not pathogenic for animals and did not show the phenomenon of symbiosis. Some years ago I described[10] a somewhat similar bacillus, isolated from pathologic urine from three patients suffering with cystitis, in which there was evidence that a causal relationship to the infectious process existed. This organism was non-symbiotic and non-pathogenic for animals. Since then, C. Koch[11] has described an identical bacillus which he believed to be the causal organism, in a number of cases of puerperal infections.

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[8] Grassberger: Ztschr. f. Hyg., 1897, xxv, 453.

[9] Friedberger: Centralbl. f. Bakteriol., 1903, i; orig., xxxiii, 401.

Recently I obtained a somewhat similar bacillus from a large abscess of the shoulder joint in an infant a few months old. The child had been in the hospital for many weeks and was supposed to be a blue baby. He had clubbed fingers and became cyanotic when crying. Clinically there was evidence of a congenital heart lesion. Roentgenograms showed the heart dilated to the left, with evidence of a hypertrophied left auricle. Not only cultures of pus obtained from the abscess by aspiration, but also cultures of blood from the median basilic vein gave a pure growth of a minute, gram-negative, non-motile bacillus, which was strictly hemoglobinophilic and which resembled closely the influenza bacillus except in its symbiotic property. The same bacillus was grown from the bronchial secretion, and it was probably from this source that the organism entered the circulation and later localized in the shoulder joint. It grew readily on blood-agar under aerobic conditions. The colonies were about 1 mm. or slightly less in diameter, gray in color, slightly raised, moist and spreading, and were not hemolytic on blood-agar plate cultures. The organism showed a tendency to grow in clumps. In morphology, the bacillus was approximately the size of the influenza bacillus; bipolar staining was often observed. Short thread forms were commonly seen, simulating those in cultures of *B. influenzae*. The red blood count was 7,040,000; hemoglobin 100 per cent.; white count 18,300, which, when differentiated, gave small mononuclears 51, large mononuclears 7, polynuclears 40, eosinophils 1, transitionals 1. After aspiration of the shoulder joint, the child improved and one month later was still cyanotic, though the shoulder swelling had subsided. Cultures of the blood and of the nasal secretion at this time gave negative results.

Moon[12] has reported an anaerobic, strictly hemophilic diplobacillus isolated from an infected ethmoidal sinus. It differs from the Pfeiffer's bacillus as follows: It is larger; it is a diplobacillus; it gives more involution forms; it stains more readily and is anaerobic. It was found within the leukocytes in large numbers. It was specifically agglutinated by the patient's serum in dilutions of 16:1, and the opsonic index was 3. It was non-pathogenic for animals.

The hemoglobinophilic bacilli are interesting in that they are pure parasites, for the very evident reason that only in animals can they find the hemoglobin which, so far as we know, is absolutely necessary for their existence. And since they are not spore formers and are all very delicate organisms, their length of life outside the animal body is very short, probably a few days at the most.

The rather remarkable and extreme adaptation which they have undergone in relation to hemoglobin is also an interesting and important biologic phenomenon. While hemoglobin seems indispensable to them, certain closely related respiratory pigments, for example, hemocyanin and hemerythrin, which occur in some of the lower animals and appear to have a function similar to hemoglobin in the higher forms, cannot be utilized.

The exact rôle of hemoglobin in their metabolism is not known. They seem to be able to use about equally well this substance from nearly all higher forms of animal life, though the hemoglobin from the pigeon seems as a rule to give somewhat more abundant growth. It is doubtful whether the hemoglobin is necessary on account of its nutritive properties, because an extremely minute quantity (1 part in 80,000 parts of the medium) suffices for growth, and also because these organisms will not multiply at all when placed in distilled water containing small amounts of hemoglobin. The phenomenon may be therefore a catalytic one.

SUMMARY

The hemoglobinophilic bacteria may be divided into two general groups: (1) those of the Pfeiffer-bacillus type, all of which reveal the phenomenon of symbiosis and are very commonly found in infectious diseases; (2) a far more heterogeneous group which includes the organism described by Friedberger, the bacillus found by myself and by Koch in urinary and uterus infections, the bacillus found in the pus of the shoulder abscess previously referred to and also such organisms as have been described by Moon and some others. The first group is no doubt a very definite one, the members of which are closely related; indeed, usually practically identical. The second group comprises bacteria very different in character and remotely related to each other, having in common little more perhaps than the hemoglobinophilic property. Compared with the bacilli of the first group they are rare.

The hemophilic bacilli of Pfeiffer's type are of primary importance as secondary invaders in many infectious diseases, especially those involving the respiratory tract. As such, they are not harmless parasites, as has been shown by animal experimentation. In this respect they are about as common and often, perhaps, as important as such organisms as streptococci and pneumococci.

That they may be highly virulent at times and the cause of serious primary infections, is clearly shown in the not uncommon cases of purulent meningitis caused by these organisms.

Whether or not Pfeiffer's bacillus was the cause of the pandemic of influenza of 1889-1890, or is ever the cause of epidemics of influenza, is still a doubtful question.

Epidemics of clinical influenza occurring in recent years have been caused by a variety of organisms, including streptococci, pneumococci, *Micrococcus catarrhalis* and possibly other varieties.

Traveling Consumptives.—Few people with tuberculosis who travel exercise any precautions whatever. Beneficiaries of the three Government sanatoria are provided with pocket sputum cups, a colored 5 per cent. phenol, or other disinfectant solution, and are properly instructed. Others, particularly those who have resided at sanatoria, give some thought to their neighbors, but the vast majority of consumptives, as well as healthy persons, are careless with their sputa.—Ernest A. Sweet, *Public Health Reports*, April 9, 1915.

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[10] Davis, David John: Jour. Infect. Dis., 1910, vii, 599.

[11] Koch, C.: Ztschr. f. Geburtsh. u. Gynäk., 1912, lxix, 634.

[12] Moon: Tr. Chicago Path. Soc., 1913, ix, 51.

THE YOUNG GRADUATE AND THE PROPRIETARY MEDICINE QUESTION *

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The time has now arrived when you will go forth into the world at large to practice the profession to the study of which you have devoted these last four years. You all look forward to this as a time of release from the burdens of an academic life, and most of you probably anticipate it as the coming of your era of independence. I fear that those of you who cherish this idea without great restriction are destined to receive more than one rude shock within the first brief year. Within these walls your way has been pointed out to you by those who have learned the road by experience, and to them you have been able to turn for aid in the solution of the problems which have confronted you thus far. With the hour of your entrance into the practice of medicine, all of this will change, and it is you who will be sought out for advice and the solution of problems. Where these problems have to do with the diagnosis and treatment of human ills we have no fear that you will not solve them readily and, for the most part, with an ever-increasing skill. But other problems will confront you almost from the moment when you acquire your telephone number and place your nice new name plate out to face the weather.

Of these other problems and vexations, one which is destined to pursue you most relentlessly is that of the proprietary medicine and the "new and elegant pharmaceutic preparation" "nicely designed to suit all of your requirements." It is of this problem that I wish to speak a few words, and for the meeting of which I wish to prepare you in some measure.

PROBLEM OF THE PROPRIETARY MEDICINE

The chances are about even that among the first to ring your door bell will be a well-dressed gentleman carrying a small satchel who, without giving his name or stating his business, will so impress every one that he will gain admittance to your office at once. You will encounter in him a skilful and plausible talker who will endeavor to persuade you, for example, that for all pulmonary conditions you will find X-Y Company's scientific synthetic preparation decidedly superior to the older remedies. He will tell you of its advantages, will cleverly seek to implant the idea that it is quite without danger, that it is, of course, free from the many disadvantages possessed by all other preparations, including those in the "antiquated" pharmacopeia, and best of all, that it is in a form which is very pleasant to the patient and the doses and precise indications are stated in the neat little pocket companion which he will be glad to have you accept. Before he leaves you will begin to wonder why no mention was made of this truly remarkable new synthetic back in medical college. To make his case the stronger he will relate the names of several prominent hospitals in which it has now replaced the older drugs, and will casually call attention to the fact that Dr. Smith, who is the best-known man in your neighborhood, is using it in his practice with great success. All possible changes will be rung on this form of exploitation, and you will be bombarded on all sides by detail men, personal letters, beautifully gotten up booklets, card indexes, prescription pads and books, samples, circulars, wall charts, pencils, hosts of blotters, paper cutters, calendars, telephone pads, etc., each designed to induce you to use some particular preparation which has every conceivable advantage, with no disadvantage whatever. You will open your medical journal and be confronted with page after page of cleverly worded advertisements of the same preparations. Now and then a reprint will be sent you in a plain envelope of a paper by some unknown doctor with many titles and apparent hospital appointments whose name you could probably not find in the medical directory. But worst of all will be the time when one of your patients asks you what you think of "Laxaprune" or some other nostrum of that ilk for constipation.

A few of the preparations thus brought to your attention will be of some value and will not be frauds, but will be honestly offered and in some instances will be real additions to your therapeutic armamentarium. Others may be honest in their composition but will merely be nice mixtures of common pharmacopeial or National Formulary preparations, no better than you should be able to prescribe extemporaneously, but offered with some claims of advantage. Another group will comprise preparations perhaps not vicious in themselves, but made so by the exaggerated and false claims made for them. And the last group will be that of the utter frauds which are often not of the same composition two years in succession, although their claims never change with the alterations in their composition.

The problem which will confront you in this whole matter of the new synthetic, the specialty, the proprietary preparation and the nostrum will be for you to determine which is of value, the limitations of its advantages, and what dangers and disadvantages it has; which is merely a mixture such as any pharmacist could prepare on your prescription, and which are pure frauds. How are you to solve this problem? Have you the knowledge requisite for its solution? If you have the knowledge have you the time and the facilities at hand? Where shall you turn for trustworthy information? The first of these questions I will answer in a word or two, but to the last I shall devote some time, for it is your most important and readiest means available.

Have you the knowledge for the solution of this question in a given case? Yes, in many instances you have. Often the fraud is so patent and the claims are so preposterous and palpably impossible that a brief reflection will suffice to show you the worthlessness of the preparation. But in other instances there may be room for reasonable doubt, and the scrutiny to which you can submit the preparation will be inadequate to warrant a final judgment. You must here seek the aid of the unbiased opinions of others whom you can trust. This will also be true in those cases in which you could answer the question for yourselves, but for which you have neither the time nor the facilities.

NEW AND NONOFFICIAL REMEDIES

This leaves for discussion the question of where you shall turn for the desired trustworthy information. So short a time as ten years ago you would have been

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* Address to the graduating class of Cornell University Medical College, 1915.

without such aid; but you who graduate now all have the desired source of information at your command. It is the volume entitled New and Nonofficial Remedies, published annually by the Americal Medical Association. That you may better understand the service this volume can render you I shall devote a few minutes to a brief review of its history and shall tell you something of the Council on Pharmacy and Chemistry, its work and the rules which govern its decisions on the characters and claims of the many preparations which are included in the volume. I shall also speak of the scope and limitations of the book and shall call your attention to some of the other work of the Council on Pharmacy and Chemistry which will prove of value to you in this same connection.

From the earliest days of therapeutics there have been frequent attempts made to commercialize various drugs and preparations, such common agents as ipecac, cinchona and veratrum viride long being thus exploited under the cover of secrecy. Then came the development of the complex mixture offered for the cure of a host of diseases and conditions, this rapidly developing into the common "patent medicine," which is still with us in untold numbers. As chemistry advanced within the past generation or so, there came the development of synthetic substances, some of which were found to have pharmacologic actions of more or less value.

The financial harvest reaped by the manufacturers of a few of these preparations, both synthetic and of the nature of common secret mixtures, naturally led many to turn their attention to the development of other preparations. It was soon appreciated by shrewd but unscrupulous persons that the liberal use of money for advertising would carry many preparations into wide use wholly without regard to any inherent value, or lack of value, which might be theirs. Secrecy and plausible praises were all that were necessary if combined with sufficiently wide and insistent advertising. Thus there sprang up in a night, like mushrooms, scores of simple mixtures of well-known substances under the guise of new synthetics, and hosts of worthless and even dangerous preparations. It was also discovered that physicians were, alas, quite as gullible as laymen, and there began a disgraceful exploitation of the medical profession which had reached such magnitude a few years ago that certain of the better informed members of the medical profession saw the need for a serious attempt to stem this tide for the good both of their profession and of the laity. This attempt finally took definite form in 1905, and in February of that year the American Medical Association created the Council on Pharmacy and Chemistry.

The Council on Pharmacy and Chemistry, or, as I shall speak of it, "the Council," is not a self-appointed committee of reformers, as some of its calumniators are fond of stating. It is a group of chemists, pharmacists, pharmacologists and physicians chosen for their ability to judge of the value of remedial agents, a certain number being elected annually by the Trustees of the American Medical Association. Their interest is the protection of the medical profession and the laity against fraud, secrecy and the undesirable advertising of proprietary remedies, and such as are not official in the pharmacopeia or National Formulary. It is their duty to examine into the validity of the claims made regarding new preparations, to record standards for their composition and to see that they are advertised in a way consistent with the truth regarding their value. To guide them in their decisions, it was necessary for the Council to establish certain rules with which each preparation should be required to comply before it could be admitted to the list of remedies which are honestly marketed and for which there is just evidence of some value. The preparations and remedies which meet all of the requirements laid down are said to be "accepted" by the Council for inclusion and description in its annual publication, New and Nonofficial Remedies. Their acceptance and inclusion in N. N. R. in no way implies any recommendation by the Council respecting their value. It merely indicates that they do not conflict with the published rules of the Council.

There are ten of these official rules laid down by the Council to govern the admission of any proprietary article to the book and, although these are given in full in the volume, together with some explanatory comments on them, I will take them up briefly for discussion, mainly to show how they serve to protect you against fraud and deception.

THE TEN RULES OF THE COUNCIL

Rule 1 requires that the composition of each preparation submitted for consideration shall be furnished to the Council for publication. When the substance is simple, its scientific name and chemical formula, if the latter is known, are required. In the case of mixtures, the amount of each active ingredient in a given quantity of the preparation must be stated, along with the general composition of the vehicle, including the percentage of alcohol which it contains and the identity of any preservatives which may be present. These data are published for each accepted article in the description given of it in N. N. R. You can, therefore, easily determine the precise nature of any such new preparation or drug by reference to this volume. You will then be in a position, in the case of many drugs and preparations at least, to judge for yourselves on the basis of your pharmacologic and therapeutic knowledge whether or not a given substance may be suited for use in a particular case.

Rule 2 requires that suitable tests for the determination of the composition, identity and purity of any preparation submitted shall be supplied and, in the case of mixtures, for the determination of the amount and activity of their potent ingredients. This rule is rather of indirect value to you, for you will seldom have either desire or opportunities to carry out the tests given. But it affords you the security of knowing that there are such tests to insure the identity and uniformity of the preparation as well as its activity. The fact that they are made public alone goes a long way toward insuring that the article as marketed is always the same. In addition, the Council applies such tests from time to time to samples obtained in the open market, and if they are found wanting in any respect, the manufacturers are warned of this fact, with the understanding that a failure to correct it may lead to the exclusion of the article from the list of accepted drugs.

Rule 3 calls for the rejection of all preparations which are advertised directly to the public. To this rule, however, there are two exceptions. The first permits the advertisement of disinfectants and germicides if this is restricted to "conservative recommendations for their use as prophylactic applications to superficial cuts and abrasions of the skin and to the mucous surfaces of the mouth, pharynx and nose." The second exception allows the advertising in an unobjectionable manner of nonmedicinal food preparations. This rule is of great value to the public. But it is not less so to you, for those who have worthy preparations are usually very desirous of having them included in N. N. R., and the mere fact that you may see a preparation advertised to the general public stamps it at once as one which is excluded from recognition by the Council and one which is in all probability in some respect fraudulent or else worthless.

Rule 4 serves to extend the scope of Rule 3 in preventing indirect advertising to the layman by for[illegible] to any preparation of which the label, package or enclosed circular contains the names of the diseases or conditions for which it is recommended. This guards you against becoming the unwilling agent of the manufacturer by placing in a patient's hands information which might lead him to self-medication with the particular preparation. This method of using the physician to advertise a proprietary medicine has been very greatly abused in the past, and its correction is a matter of much relief to the conscientious physician.

Rule 5 covers the question of false claims as to the origin of the material from which the preparation is made, and requires in addition that the name of the actual manufacturer must be furnished to the Council. The need for this rule may not be apparent to you at first, but when I mention that only a few years ago there were many persons engaged in the "patent medicine" business who were offering worthless or harmful mixtures under catchy names, often claiming that they were new synthetic drugs, and that often these persons merely engaged some pharmaceutic house to prepare these mixtures, which they then sold at fabulous prices, you will readily see how great an abuse this form of fraud could become. It had, in fact, become one of the greatest of all abuses in the field of proprietaries. Such mixtures of acetanilid, caffein and sodium bicarbonate as "antikamnia" were for years thought by many physicians to be true synthetics for which they would make their patients pay fancy prices on account of their own ignorance.

Rule 6 refuses admission to N. N. R. of any preparation for which exaggerated, unwarranted or misleading therapeutic claims are made. A reasonable degree of optimism is permitted the manufacturer, but this is never allowed by the Council to be carried beyond proper bounds. It used to be the practice of almost every manufacturer of a new drug to make the most extravagant claims regarding its value, all mention of any of its disadvantages being scrupulously avoided. Under Rule 6 of the Council, the claims for many articles have been so greatly modified that there is little left to recommend them, but the physician is in a far better position to determine whether or not they may be of service to him.

The seventh rule guards against possible accident by requiring the principal label on any article which contains potent or poisonous substances to bear a statement of the amount of such substances in a given quantity of the preparation.

Rule 8 calls for the naming of a preparation in a manner which shall be sufficiently descriptive of its composition, either chemical or pharmaceutic. It also refuses recognition to such articles as bear objectionably suggestive names, or such as imply the diseases or conditions for which the preparation is recommended.

A further means of protection against fraud is provided by Rule 9, which requires that the patent numbers, or those of the registered or copyrighted names, shall be supplied to the Council, and that a copy of the protected label of the preparation shall be filed with the Council.

Lastly, Rule 10 rejects all mixtures which are either unscientific or useless, or which are "inimical to the best interests of the public or of the medical profession."

OTHER CONSIDERATIONS

From what has gone before, I think that you must now have some idea of one of the difficulties which will confront you as practitioners, and I hope that you will also see and appreciate the value of the help which is given you in the solution of this difficulty by the work of the Council on Pharmacy and Chemistry which has led to the preparation of N. N. R. This is not, however, the only service which the Council is rendering. Certain of the worst frauds which are being perpetrated from time to time on the medical profession are being run down, and accounts of them appear every little while in The Journal of the American Medical Asociation. A volume is also published annually, in which will be found the reports of the Council on those preparations which have been refused acceptance for inclusion in N. N. R., and the reasons for their rejection are there clearly set forth.

The question will arise in your minds as to what you are to do when you find that a certain preparation is not mentioned in the latest volume of N. N. R. In general, you may feel fairly certain that if it is not mentioned it is because it is not acceptable on account of conflict with one or more of the rules just mentioned. It is, of course, not possible for the Council to examine into the claims of every new preparation, but it should be said that it has so far covered nearly, if not quite all of those preparations which have any genuine claim for consideration. Such, therefore, as are not to be found in N. N. R. may be presumed to be offenders in some respects, unless, of course, they have been too recently introduced to have come under consideration. (An inquiry sent to the secretary of the Council will disclose the status of any article.)

In addition to the facts which I have already brought out concerning the material in N. N. R., I would also call your attention to certain concise discussions given in it on the pharmacology, pharmacy and toxicology of various classes of preparations. The limits of dosage and the information which will enable you to combine the new preparations in suitable prescriptions are likewise to be found in this volume.

Today, upon the eve of your graduation into the practice of medicine, I have taken this occasion to tell you something of the potential value which the book New and Nonofficial Remedies holds for each of you. I hope that you will all make constant use of it; that you will learn that it is an honest and unbiased adviser ever at your hand; and I feel sure if you do call on it for help as frequently as the occasions may arise that you will come to think that I have done it but poor justice in my attempts to show you something of its inestimable value.

414 East Twenty-Sixth Street.

THE ONSET OF HUNGER IN INFANTS AFTER FEEDING

A CONTRIBUTION TO THE PHYSIOLOGY OF THE STOMACH *

H. GINSBURG, B.S., I. TUMPOWSKY, B.S.
AND
A. J. CARLSON, Ph.D.
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Pediatricians differ as to the incidence of hunger in infants, because up to the last few years there has been no certain objective criterion for the existence of hunger. This has led to varying views and practices in regard to the frequency with which infants should be nursed. Those favoring the two-hour interval for the first month are Budin, Burnet, Chapin, Cotton, Dodson, Fowler, Heubner, Holt, Rachford and Webster. Ahlfeld, Kerley and Koplik advocate two and one-half to three hour feedings. Among exponents of the three-hour interval are DeLee, Feer, Finkelstein, Lamb, Langstein, Meyer, von Pirquet and Williams. Abt believes in a three-hour to four-hour interval; while Brenneman, Czerny, Grulee, Jascke and Keller designate four-hour periods.

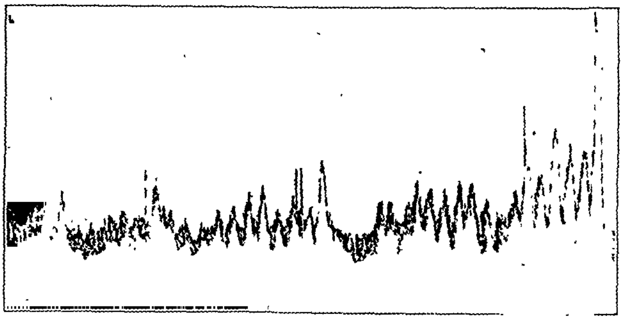

Fig. 1.—Infant, 14 days old, finished nursing at 9:05 a. m.; beginning of gastric hunger contractions 11:10 a. m. (chloroform manometer).

It is now established that the subjective sensation of hunger is caused by a certain type of contraction of the fundal end of the empty stomach stimulating sensory nerves in the wall of the stomach.[1]

Since the contractions peculiar to the cardiac and fundal ends of the empty stomach are, in normal individuals at least, an objective index of hunger, the balloon method may enable one to determine the time of onset of hunger in infants after previous feeding, and the answer to this question may aid in fixing the time that should elapse between the nursings of normal infants.

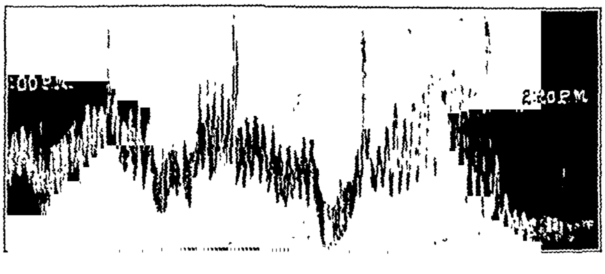

Fig. 2.—Infant, 4 days old, finished nursing at 11:50 a. m. Tracing shows end of period of gastric hunger contractions at 2:30 p. m. (chloroform manometer).

METHOD AND RESULTS

The experimental procedure is recorded in a previous publication.[2] The observations were made on thirty normal infants, from 24 hours to 4 weeks old. Introduction of the balloon into the stomach directly after nursing leads to vomiting of the balloon and some of the food. The balloon is readily retained from forty-five minutes to one hour after feeding. The accompanying tracings were obtained from infants who were asleep or otherwise quiet, since inhibition of the hunger contractions results when the child is restless.

Fifty-five observations were made on thirty infants. The average time between nursing and the appearance of the period of hunger contractions was two hours and forty minutes, with a maximum of three hours and thirty minutes, and a minimum of two hours and twenty minutes.

Our tracings show that when the stomach is full of food the inflated balloon in the fundus reveals practically no contractions. As the stomach gradually empties, feeble tonus contractions appear, and increase in rate and intensity until they end in a period of typical hunger contractions from two and a half to three hours after the previous nursing. This change of the tonus contractions of the fundic end of the stomach partly filled with food into the hunger contractions of the empty stomach have already been demonstrated for the adult by Rogers and Hardt.[3] Pisek and Le Wald[4] have shown by roentgenogram experiments that "three hours is practically the emptying time of a child's stomach and often less than that." Czerny,[5] Leo[6] and Pipping[7] conclude that the stomach of a normal infant empties itself in from about one and a half to two hours. The time required for emptying of the stomach depends, of course, on the quantity of the food as well as on the rate of the gastric secretion and the vigor of the gastric digestion peristalsis.

In this connection it may be of interest to note that the mammalian infant, except when under the strict control of a pediatrician, feeds, on the whole, as soon as the hunger sensation is strong enough to be uncomfortable, provided food is at hand, and he thrives on this procedure; while the infant whose routine is ordered by the pediatrician nurses every two, three or four hours, irrespective of the onset or intensity of the periods of hunger. Of course, a certain period of rest for the gastric glands may be beneficial.

SUMMARY

The infant's stomach shows feeble tonus contractions of the fundal end, one hour after nursing. As the stomach discharges its contents these tonus undulations gradually increase in frequency and intensity until by the end of from two and a half to three hours these become transformed into vigorous hunger contractions. The time of onset of hunger contractions after

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* From the Presbyterian Hospital and the Hull Physiological Laboratory of the University of Chicago.

[1] Carlson, A. J.: Am. Jour. Physiol., 1913, xxxi, 175.

[2] Carlson and Ginsburg: Am. Jour. Physiol., 1915, xxxvi.

[3] Rogers and Hardt: Am. Jour. Physiol., 1915, xxxvi, 354.

[4] Pisek and LeWald: Infant. Stomach, Tr. of Am. Pediat. Soc., 1913, xxv, 150.

[5] Czerny, A., and Keller, A.: Ernährung, Ernährungstörungen und Ernährungstherapie des Kindes, Leipzig and Vienna, Franz Deuticke, 1906, i, 57, 58.

[6] Leo, H.: Berl. klin. Wchnschr., 1888, xxv, 981.

[7] Pipping, W.: Thesis, Helsingfors, 1891.

the previous feeding varies for each infant. In our present series the minimum is two hours and the maximum three hours. The hunger contractions of the empty stomach are modified tonus waves of the fundus of the digesting stomach, as shown by Rogers and Hardt.

In the normal individual the presence of vigorous hunger contractions is probably a biologic evidence that the stomach is in proper condition to receive food. If this is the case, the stomach of a normal infant is ready to receive food from two to three hours after the previous nursing.

OVARIAN TRANSPLANTATION *

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AND
M. E. LEE
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Transplantation of human ovarian tissue with varying degrees of success has been reported and is occasionally practiced. For the most part the operation has been performed with a view of preservation of its internal secretory function. Many case histories have been reported which indicate that in this way the operation is frequently successful. In 1906 Morris[1] reported the birth of a child in a woman from whom the ovaries were removed and in whom ovaries from another woman were engrafted four years previously.

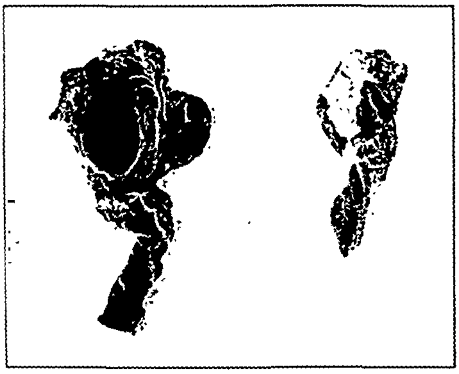

Fig. 1.—Engrafted ovaries, natural size.

For general biologic reasons, but particularly with the view of studying heredity, numerous attempts have been made to engraft ovarian tissue into animals and birds. Prior to 1894, Romanes[2] made many experiments in endeavoring to transplant ovaries in rabbits and dogs. His results were uniformly unsuccessful.

Gregorieff[3] in 1897 reported pregnancy in four rabbits from which the ovaries were removed and replaced.

Magnus[4] in 1907 reported the birth of young by a black rabbit whose ovaries had been removed and replaced with those from a white rabbit. The coat markings of the young indicated a soma or foster-mother influence.

Guthrie[5] in 1907 successfully transplanted ovaries from hen to hen. Such fowls laid eggs which were hatched. Chicks thus obtained showed evidence of foster-mother influence.

From experiments on rats, Marshall and Jolly[6] in 1908 stated that (1) ovarian autografts succeed better in the kidney than in the peritoneal cavity; (2) ovarian isografts succeed less readily than autografts; (3) isografts are more successful between nearly related than between distantly related individuals, and (4) it is not necessary to create a deficiency—that is, remove ovarian tissue—in order to achieve such success. Their work was largely based on preservation of histologic structure in transplanted tissue.

Ribbert[7] in 1898 reported preservation of structure in guinea-pig ovarian tissue removed and replaced.

Castle[8] and Guthrie[9] in 1909 obtained young from guinea-pigs whose ovaries had been removed and replaced with ovaries from other guinea-pigs.

The results reported in this paper were obtained on dogs.

Two sister puppies 3 months old were operated on, the ovaries in each case being removed and transplanted into the other animal. At this time the organs measured about 6 mm. in length. The animals were operated on simultaneously. Each ovary was exposed and its pedicle firmly grasped throughout its entire extent by curved forceps. A fine silk thread was then passed through the base of the ovary by means of a cambric needle. The ovary was then completely separated from the pedicle with a knife. It was then instantly transferred to the other animal and fastened to the pedicle of the former ovary by means of the thread previously inserted into its base.

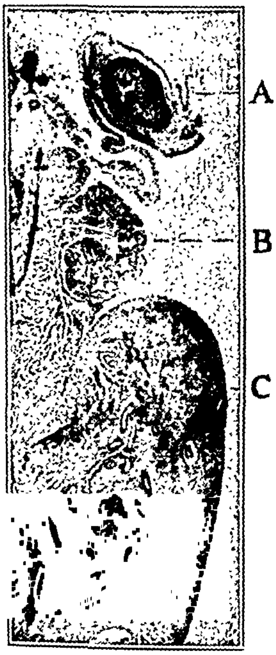

Fig. 2.—Low power photomicrograph, showing free relation of transplanted ovary to fallopian tube; *A*, fallopian tube; *B*, fimbriated extremity of fallopian tube; *C*, ovary.

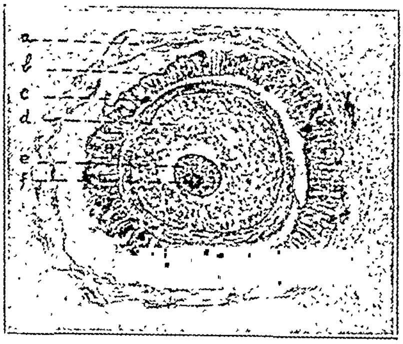

Fig. 3.—Camera lucida drawing of graafian follicle in right engrafted ovary; the structures are all normal in appearance; *a*, theca folliculum; *b*, corona radiata; *c*, zona pellucida; *d*, ova; *e*, germinal vesicle; *f*, germinal spot. Schron's granules were observed.

The animals made uneventful recoveries and appeared the same as dogs not operated on. One was lost, while the other was killed through accident eighteen months after operation. The animal was in good condition.

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* From the University of Pittsburgh, School of Medicine.

[1] Morris: Med. Rec., New York, 1906, lxix, 697.

[2] Romanes: Darwin and After Darwin, 1906, ii, 143, 144.

[3] Gregorieff: Centralbl. f. Gynäk., 1897, xxi.

[4] Magnus: Norsk Mag. f. Lægevidensk., 1907, No. 9.

[5] Guthrie: Proceedings of the Society, Am. Jour. Physiol., xix, pp. xvi, xvii.

[6] Marshall and Jolly: Quart. Jour. Exper. Physiol., 1908, i, 2.

[7] Ribbert: Arch. f. Entwcklngsmechn., 1898, vii, 668.

[8] Castle: Science, 1909, xxx, 312.

[9] Guthrie: Science, 1909, xxx, 724.

There were slight peritoneal adhesions between the intestines and the anterior wall of the abdominal cavity at one point along the line of incision. The right ovary appeared normal and was much larger than at the time of transplantation (Fig. 1). It was whitish pink and showed a few dark spots. The left ovary was represented by a cystlike mass the size of a navy bean. It was dark in color and soft to the touch. When the capsule, which was markedly thickened, was opened, a small gelatinous mass was found. It was clear to pale yellow, and measured about 10 by 4 by 2 mm.

The lumen of the upper end of the right fallopian tube appeared to be somewhat narrowed. Communication between the fimbriated extremity and the ovary was unobstructed (Fig. 2). The lumen of the left fallopian tube was patent.

Histologic examination of the right ovary revealed abundant normal histologic elements (Fig. 3), including corpora luteum (Fig. 4). The left ovary had undergone complete colloidal degeneration, at least so far as the reproductive elements were concerned.

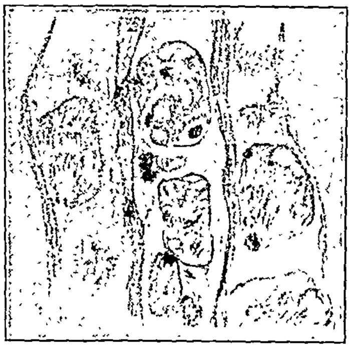
Fig. 4.—Camera lucida drawing of a few cells of a corpus luteum in the right engrafted ovary.

As no attempt at mating the animal was made, the experiment is not conclusive as to the possibility of pregnancy.

The result leads us to believe that ovarian transplantation in dogs is not only feasible but also offers a promising means of obtaining information regarding optimum conditions for success as well as heredity.

SYPHILIS OF THE STOMACH

A REPORT OF EIGHT CASES WITH ROENTGENOLOGIC FINDINGS *

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AND
LEON T. LE WALD, M.D.
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It is generally stated in textbooks on diseases of the stomach that syphilis of this organ is of rare occurrence, and that it is found in scarcely more than 1 per cent. of patients afflicted with the disease. The advent of routine blood examinations, however, and the great advance made in the diagnosis of all gastro-intestinal lesions by the use of the Roentgen ray prove that this contention can no longer be held.

Since June 1, 1913, eight cases of syphilis of the stomach, in which the diagnosis was established with a fair degree of certainty, have been admitted to the ward service of St. Luke's Hospital. Five of these patients suffered from the symptoms of obstruction, and according to the assignment of cases by region, in effect since that date, were referred to one of us (W. A. D.) for operation. The other three were cared for in the medical service, as no indication for surgical intervention existed at the time.

Syphilis appears in the stomach as a late manifestation of the disease in both the congenital and the acquired types. Jerome Meyers[1] states that the age in the youngest recorded case of the acquired form is 18 and the oldest 60. In the congenital cases, gummas have frequently been found at necropsy in the stomach of the new-born.

The ages in our cases were 14 and 17 in the congenital type and 22, 23, 34, 42, 62 and 63 in the acquired.

Diffuse syphilitic gastritis has been described, and histologic examination in such cases has shown the changes of generalized gummatous infiltration of the submucosa. In the great majority of instances, however, the disease appears in the form of localized gummas, either single or multiple. The lesions may be situated in any part of the stomach, but seem to occur most frequently in the pars pylorica, involving either the lesser or greater curvatures, or both. The gummatous deposits are described by pathologists as starting in the submucosa and spreading gradually to the other coats. These deposits pass through the stages of infiltration, ulceration and cicatrization, in varying degrees. One portion of the wall may remain infiltrated while another passes on to ulceration or may become cicatricial. Definite pyloric stenosis may occur either as a result of the gummatous infiltration, cicatrization of the ulcer or perigastric adhesions. Obstruction from the combination of these conditions necessitated operation in five of our cases. Besides the lesions in the stomach wall, other syphilitic manifestations are usually present, such as marked perigastric adhesions, changes in the liver capsule and gummas of the liver, and extensive involvement of the gastrohepatic and gastrocolic lymph glands, as well as other constitutional and local evidences of the disease.

The symptoms of gastric lues when considered in a general way differ very little from those of other lesions of the stomach of equal extent and like location; but when carefully analyzed, several striking differences become apparent. To begin with, the pain lacks the periodicity of the average simple ulcer—it is not so much influenced by the taking of food and is frequently referred to as gnawing in character; it is, however, persistent, and was an important symptom in the cases observed by us. Vomiting was a marked symptom in our cases almost from the beginning. This is probably accounted for early, by the gummatous infiltration, and later on, by the cicatrization and adhesions, possibly too, indirectly from the disturbed liver function. Although small quantities of blood have been found in the gastric analyses of the cases, and a few claim to have had tarry stools, hemorrhage has not been so frequent or severe as in simple ulcer; this is especially striking when the long history of many of the cases is taken into consideration. Our observation in this respect corresponds with the experience of Fenwick,[2] who states

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* From the Surgical Service and Roentgen-Ray Laboratory, St. Luke's Hospital.

* Read before the New York Surgical Society, March 24, 1915.

* Because of lack of space, this article is abbreviated in The Journal by omission of some of the case reports and illustrations. The complete article appears in the authors' reprints. A copy of the latter will be sent by the authors on request.

[1] Meyers, Jerome: Albany Med. Ann., October, 1912.

[2] Fenwick, and Soltau, W. S.: Cancer and Other Tumors of the Stomach, Philadelphia, P. Blakiston, Son & Co., 1902, p. 313.

that the infrequency of hematemesis in these cases helps to differentiate them from simple ulcers. On the other hand, Lockwood[3] reports a fatal case from hemorrhage. The predominating feature of the disease clinically is the extreme loss in weight, which in one of the cases here reported amounted in eighteen months to one half of the patient's former weight.

Gastric analysis was omitted in Case 5, on account of constant vomiting and disinclination on the part of the patient. In Case 6, there is no record that an analysis was made. In Cases 1, 7 and 8, the examination showed absence of free hydrochloric acid and a combined acidity of 32, 16 and 14, respectively. In these cases there was extensive involvement of the stomach wall as shown by the roentgenograms and in Case 1 by operation. In Cases 2 and 3, in which the symptoms were those of pyloric stenosis and the lesions were demonstrated at operation to be at the pylorus, free hydrochloric acid was 30 and 36, with a combined acidity of 52 and 70; while in Case 4, in which there was hour-glass contraction with constriction at the pylorus, the analysis showed free hydrochloric acid 13, total acidity 34. Lactic acid was absent in every case. The guaiac test for blood was positive in five cases. While these findings are in no wise conclusive, they would seem to suggest that there is absence of free hydrochloric acid, and a low total acidity in the cases, with extensive involvement of the gastric mucosa unaccompanied by special involvement of the pylorus, and that the distinctive pyloric stenosis type without diffuse infiltration of the mucosa shows the usual findings of ulcer in that region.

The diagnosis of gastric syphilis can be established without much doubt if the history and clinical findings are given proper consideration. In the congenital cases, the family history and the early history of the patient, his general development and appearance and other syphilitic stigmata with symptoms of gastric disturbance are very suggestive, while in the acquired cases a definite history of infection may be established. In both instances, the course of the disease differs from the simple type of ulcer, in that it is influenced but little by dieting and the ordinary methods of treatment, and it is unlike malignancy in that there is not the steady and continuous progress to a fatal termination. With such a history and due consideration given to the symptoms previously enumerated, the added evidence of a positive Wassermann reaction and the roentgenographic findings of deformity of the stomach make the diagnosis practically certain. Finally, the value of the therapeutic test must be given due weight. That mixed treatment and salvarsan will produce temporary improvement in old ulcers or even certain cancer cases there is no doubt, but the benefit is of short duration, where, as in the class of cases under consideration, there is a return to normal health; and if the lesion in the stomach has not reached the cicatricial stage, this organ may be restored to its former condition.

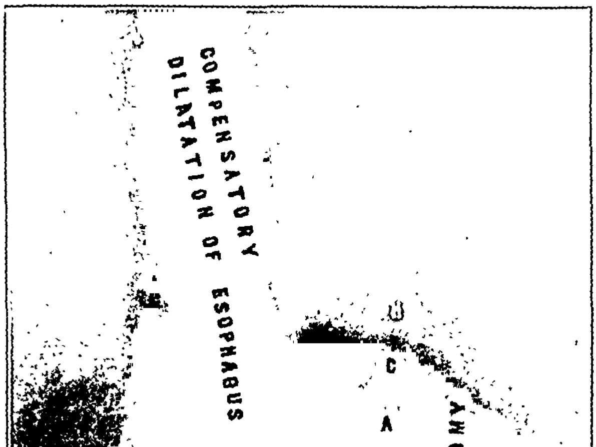

Fig. 1 (Case 1).—Girl, aged 14. Note dumb-bell-like appearance due to sclerosis of body of stomach. After gastro-enterostomy, most of food going through opening, but enough passing through stenosed portion to outline it. Note compensatory dilatation of esophagus.

Two of our cases were of the congenital type, two gave definite histories of chancre and in one the husband gave a positive Wassermann. The history as to primary infection in the remaining three was negative. The Wassermann reaction was four plus positive in every case. Roentgenograms showed definite changes in the shape and size of the stomach in six cases, and in the other two demonstrated a marked degree of pyloric stenosis. The deformity in the stomachs varied from an irregularity along the curvatures to hour-glass contracture, and in one case to extreme distortion, giving the appearance not unlike that of a dumb-bell. Response to treatment has been astonishing in each case, and bears witness to the value of the therapeutic test.

The pathologic diagnosis of syphilis of the stomach is even more difficult to establish with certainty than the clinical diagnosis, as syphilitic infiltration so closely resembles tuberculosis. In two of our series, Cases 4 and 5, specimens were removed for microscopic examination. In Case 4 a nodule the size of an almond was removed from the surface of the liver, which was studded with such tumors varying in size from a pea to a walnut. Macroscopically, this was a typical syphilitic liver. Dr. Wood, pathologist to St. Luke's Hospital, did not feel justified in making a positive report of syphilis from the morphology.

A fair sized piece of gastric mucosa and an omental gland 1.5 by 0.6 cm. were removed from Case 5 for examination, and the report on the sections from the mucosa states that the diagnosis must remain in doubt with the probability that the condition is syphilis rather than tuberculosis. Sections of the gland showed simple inflammatory reaction. (For detailed pathologic report of these two cases, see histories.)

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[3] Lockwood, G. R.: Diseases of the Stomach, Philadelphia, Lea and Febiger, 1913, p. 305.

Roentgen-ray findings in syphilis of the stomach may be divided into three classes: first, a fairly typical change consisting of a diminished size and dumb-bell-like appearance of the stomach due to deformity caused by infiltration involving the middle or pyloric half of the stomach, this portion representing the handle of the dumb-bell. In this type the pyloric sphincter may be involved and held open so that the stomach empties, or at least begins to empty in a very rapid manner, such as has been observed in carcinomatous infiltration of the pylorus where the pylorus is held open, or in spontaneous or artificial gastro-enterostomy. But even though the stomach begins to empty in a very rapid manner, there may be a trace of food remaining high up at the cardiac end at the sixth hour.

Secondly, the findings may be similar to those in the first type except that the involvement of the pylorus or the extreme stenosis of the infiltrated portion of the body of the stomach may cause delay in the emptying of the stomach such as occurs in ulcer or carcinoma.

In both the first and second types, however, the stomach appears to be smaller than normal, and there is apt to be a tendency to compensatory dilatation of the esophagus to make up for the diminished capacity of the stomach.

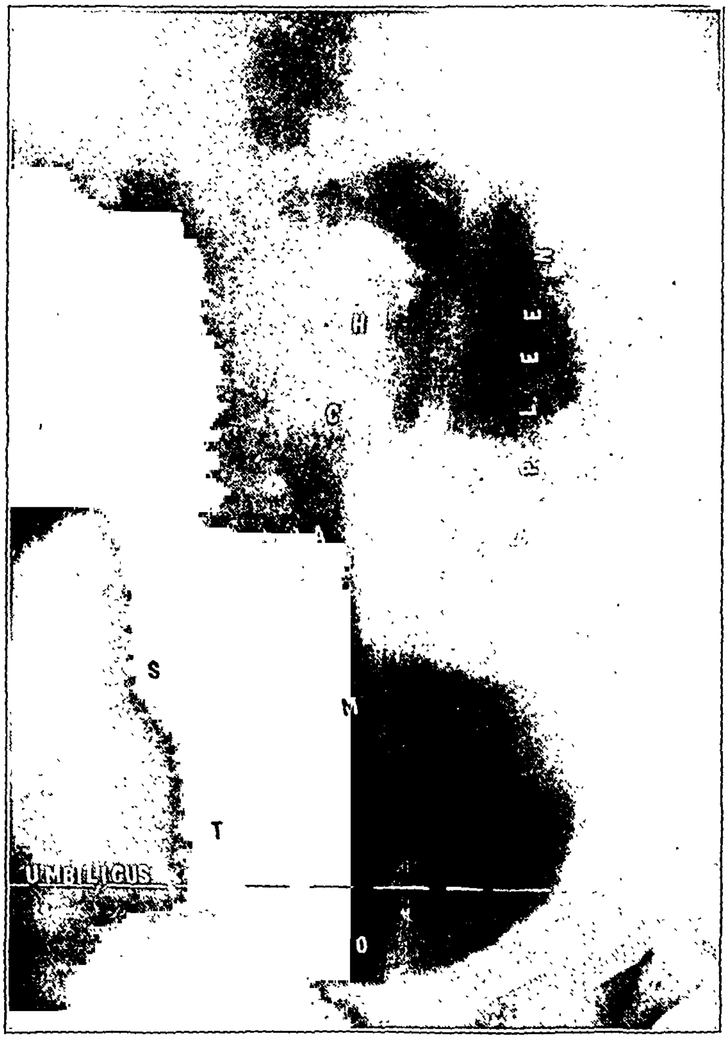

Fig. 2 (Case 4).—Woman, aged 34. Note hour-glass constriction with long channel between pouches. Condition confirmed at operation and relieved by breaking up of perigastric adhesions and performance of gastro-enterostomy to the lower pouch.

In the third type the infiltration may involve only the pyloric region, in which case the findings may resemble closely those found in cicatrized ulcer in this region and may be accompanied by dilatation of the stomach.

The treatment of gastric syphilis is, strictly speaking, medical; and if the diagnosis could be made while the disease is in the stage of infiltration, there should be no complications requiring operative intervention. Even though the pylorus is encroached on in the early stage, there is reason to believe, from the rapid response to proper treatment in nearly all reported cases, that stenosis of any extent or duration could be easily prevented. However, when ulceration and cicatrization have taken place, surgical measures play an extremely important rôle in the treatment of this condition, and should not be too long postponed. Three cases, 6, 7 and 8, showed little or no obstruction by Roentgen examination, and for this reason the question of operation was deferred until after vigorous antiluetic treatment had been given a trial. There was immediate response in each case, and now, from six to eighteen months later, all three patients are in good health. It will be noted from the histories of these patients that pain was the most prominent symptom, and not vomiting, as was the rule in the obstructed cases. Persistent vomiting with increasing loss of flesh and strength is by far the most frequent complication requiring operative relief. Gastro-enterostomy best meets the indication, and was the operation employed in five of the cases here reported. In three instances, involvement of the stomach wall was so extensive that it was difficult to find a fit place to make the anastomosis. Jejunostomy should be borne in mind, and would be preferable to a difficult gastro-enterostomy in a bad risk. Pylorectomy and the excision of ulcers are usually contraindicated on account of coexisting lesions. The former operation could have been performed in Case 2, but the presence of tabes seemed to be sufficient contraindication. In Case 3, also of the pyloric stenosis type, there was marked fixation to the liver and the man was in poor condition; but we so placed the anastomosis that a two stage operation could be undertaken. Improvement was so rapid and satisfactory that the patient refused a second operation. We are aware of the fact that all gastric ulcers, syphilitic or otherwise, have potential dangers, and for this reason the question of resection should be considered in every suitable case. If there is sufficient evidence, however, to make a diagnosis of syphilis of the stomach, no case should be subjected to more than the simplest form of operation necessary to relieve urgent symptoms until after antiluetic treatment has been given a reasonable trial.

SUMMARY

Syphilis of the stomach occurs much more frequently than was formerly supposed. The Wassermann reaction and roentgenologic examinations have provided the missing data necessary to establish the diagnosis. These aids to diagnosis should be applied in every case of disease of the stomach. If the diagnosis is made reasonably early, antiluetic treatment should control the symptoms; if not made until late in the disease, surgical intervention may become necessary to relieve complications.

REPORTS OF CASES

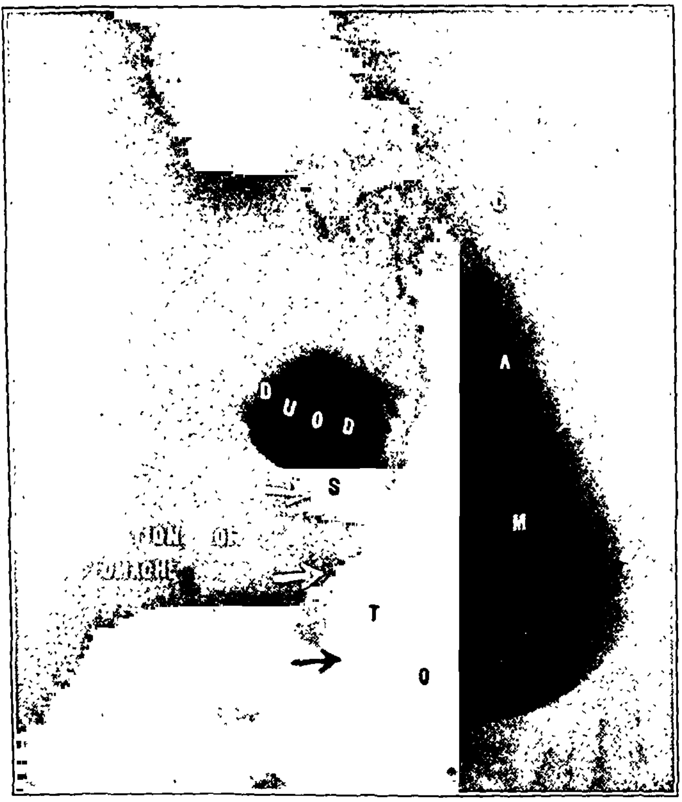

Fig. 3 (Case 5).—Woman, aged 23. Note deformity at pyloric third of stomach due to sclerosis. Note close resemblance to new growth. Diagnosis of syphilis confirmed by operation and microscopic examination of section of stomach wall. Symptoms relieved by gastro-enterostomy, but deformity persisted.

CASE 1.—*History*.—H. D., girl, aged 14, admitted to St. Luke's Hospital, June 10, 1913, whose father was living and whose mother had died of apoplexy, had never been strong; she had had more or less pain in stomach after eating as long as she could remember. For two years the eating of solid food had caused vomiting and severe pain; she lived on fluid diet six months and now swallowing of liquids caused pain and was frequently accompanied by vomiting; she never vomited blood. Examination revealed emaciated body with sallow skin; eyes negative; bad teeth; palpable glands in postcervical chains; lungs normal; heart showed a systolic murmur. Abdomen retracted, not tender on palpation, liver palpable 3 cm. below the costal margin; spleen enlarged. Extremities normal. Weight 52 pounds. Test meal showed free hydrochloric acid 0, total acidity 32, blood positive. Wassermann reaction four plus positive. Hemoglobin 50 per cent.

Roentgen Examination.—The food passed into the cardiac end of the stomach, which it soon filled, and then backed up into the esophagus; only a trace passed through a very long, narrow, stenosed portion of the stomach extending from the cardiac end to the pyloric region, where a slight pouch was then evident. This gave a peculiar dumb-bell-like appearance to the stomach outline—one portion of the dumb-bell being formed by the cardiac end and the other portion by the pyloric end with a long narrow handle part of the dumb-bell between. The patient was then studied carefully in various positions, and the deformity of the stomach found to be constant. The stomach failed to empty itself within six hours. The following day a confirmatory examination was undertaken, and showed that the peculiar deformity of the stomach persisted. The patient was then admitted to the hospital and a third examination was made of the stomach, which confirmed the finding of stenosis of the body of the stomach producing dumb-bell-shaped deformity. Syphilis of the stomach was suggested as a possible diagnosis from the Roentgen examination.

Operative Indication: Persistent vomiting due to deformed stomach.

Operation.—July 12, 1913, a posterior gastro-enterostomy to the cardiac pouch was done with considerable difficulty owing to adhesions and size of pouch. Recovery was uneventful; no vomiting occurred until the tenth day. This was due to taking food in too large quantities and was relieved by properly regulating feedings.

Pathologic Findings.—The middle half of the stomach is occupied by an infiltrated mass which has practically destroyed the lumen. The greater curvature is drawn up to the lesser. There is a small pyloric pouch which connects with a moderate-sized cardiac pouch by a long narrow channel into which a finger cannot be invaginated. At some points the wall is infiltrated and has a doughy feel, while other portions are hard and fibrous. The wall of both the cardiac and pyloric pouches is thickened. There are many perigastric adhesions. The liver is enlarged and grayish.

Two weeks after operation the patient was referred for Roentgen examination on account of vomiting. This examination showed that the gastro-enterostomy was working satisfactorily, but that the child was overtaxing the capacity of the stomach by taking too much food as she began to improve in health and appetite. It was plain to see from the Roentgen ray that food backed up into the esophagus owing to its being taken in greater quantities than the gastro-enterostomy could take care of (Fig. 1). Based on this examination, feeding in smaller quantities but at more frequent intervals was advised. Vomiting ceased and gain in weight followed. The patient was examined at intervals of several months up to the present time. The deformity of the stomach persisted, but the gastro-enterostomy worked perfectly, taking most of the food from the stomach; but gradually more of the food appeared to be going through the pylorus, suggesting that possibly some of the stenosis was being relieved by the antisyphilitic treatment. The constipation, which was a marked feature in the case before the operation, has been entirely relieved, and this is borne out by the passage of the bismuth meal through the colon in normal time. The last examination, made Feb. 11, 1915, one year eight months after gastro-enterostomy, showed that there was now very little tendency to backing up into the esophagus.

The patient was discharged July 17, 1913. On being examined Feb. 11, 1915, the patient was found to have gained 20 pounds in weight, was eating solid food, and was improved in every way.

CASE 4.—*History*.—G. R., widow, aged 34, admitted to St. Luke's Hospital, Jan. 4, 1915, had a negative previous history, two children and no miscarriages. Ten years ago she had a severe attack of epigastric pain with vomiting of blood; one year later she noted a swelling in the abdomen just to the right of the umbilicus. She had had attacks of pain in the upper abdomen from time to time which had no relation to the taking of food, usually radiating to the back and frequently requiring morphin; she had had attacks of vomiting at irregular intervals; the vomitus usually consisted of food recently taken and did not contain blood. One attack of jaundice occurred about five years ago. The swelling on the right side had increased in size until now she could feel a mass the size of an orange, not tender, and there was only occasional pain in this region. Her general appearance was that of a poorly nourished woman appearing many years older than the age given; color bad; eyes negative; heart and lungs normal. Liver edge palpable 1 cm. below the costal margin. In the right upper quadrant was a rounded tumor mass the size of an orange which moved with respiration, seemed to be attached to the liver, and was slightly tender. Reflexes normal. Weight 116 pounds. Wassermann reaction four plus positive. Tuberculin reaction negative. Fasting stomach showed 65 c.c. of greenish fluid containing mucus and strands, small particles of food and blood clots. Bile plus, lactic acid 0, free hydrochloric acid 13, total acidity 34.

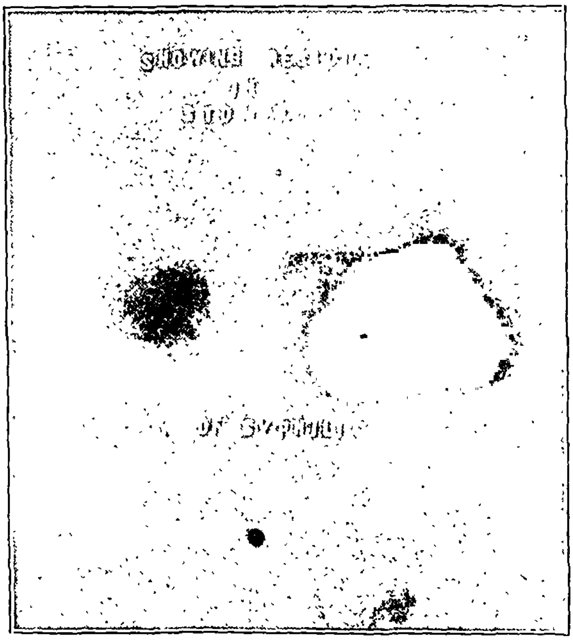

Fig. 4 (Case 6).—Boy, aged 17. Note deformity at junction of pyloric and middle thirds of stomach. This case responded to medical treatment, but the deformity remained.

Roentgen Examination.—This revealed the stomach as having the appearance of being deformed, of an hour-glass-like appearance. The lower pouch of the stomach appeared to be dilated and reached to a point 1 inch below the umbilicus, the upper half very much narrowed (Fig. 2). (There is a distinct shadow indicating an enlarged spleen.) The pyloric region appeared to be somewhat deformed, suggesting a spasmodic condition or *pressure*. At the sixth hour there was a large residue in the stomach, the shadow of which measured 4 by 3 inches. At the twenty-fourth hour there was still some bismuth remaining in the stomach.

Operative Indications: Hour-glass stomach with retention; abdominal tumor probably distended gallbladder.

Operation.—Jan. 13, 1915, a posterior gastro-enterostomy to distal pouch, cholecystectomy and division of perigastric adhesions was performed, with excision of the nodule from liver. As the cardiac pouch was small and difficult to expose, and the channel connecting the pouches sufficiently wide to admit three fingers, it seemed best to unite the intestine to the distal pouch.

Pathologic Findings.—The stomach was exposed with considerable difficulty, as it was adherent to the parietal peritoneum and the under surface of the left lobe of the liver. The anterior wall and greater curvature of the stomach showed an extensive cicatrix resulting from an ulcer which gave the appearance of having healed at one part and still being active at another.

The perigastric adhesions, together with the ulcer, had formed an hour-glass constriction, which was situated at the junction of the upper and middle thirds of the stomach. Division of the adhesions resulted in liberating the stomach to the extent that a channel was formed between the pouches which would admit three fingers. The pyloric end of the stomach was bound to the under surface of the right lobe of the liver by adhesions and would barely admit one finger. The gallbladder was distended to the size of a large pear; the cystic duct was occluded by a single stone; the liver was enlarged, the capsule thickened, containing many nodules varying in size from that of a pea to an English walnut.

Convalescence was straightforward. March 19, 1915, the patient had gained 20 pounds and felt well. Roentgen examination showed the gastro-enterostomy working satisfactorily, but the deformity of the stomach persisted.

Pathologic Report.—Sections from liver show marked degeneration and areas of necrosis of the parenchyma. There is marked general infiltration with round cells and many structures showing tuberclelike masses which contain giant cells of the Langhans type. There is moderate connective tissue proliferation, and occasional areas showing granulation tissue of the tuberculous type, with many endothelial cells and areas of caseation. Multinucleated giant cells are not found except in the tubercles. No tubercle bacilli are found in sections stained with carbolfuchsin, and no *Spirochaetae pallidae* in Levaditi preparations. The liver substance is almost entirely replaced by the growth, and the diagnosis must be left in doubt with the probability that the condition is syphilis rather than tuberculosis.

Case 5.—*History.*—F. G., woman, aged 23, admitted to St. Luke's Hospital, Jan. 15, 1915, had been married three years, and had one child, and no miscarriages. For the past eight months she had had an aching pain and sense of epigastric distress coming on immediately or within half an hour after eating, accompanied by nausea and sometimes vomiting, which relieved the pain. This pain radiated into the neck and toward the umbilicus. For the past two months she had vomited constantly; there was no blood in the vomitus or stools; the patient was hungry, but could not retain food. She had lost 22 pounds in the past eight months. Her general appearance was that of a poorly developed, emaciated woman. Palpable cervical lymph nodes; systolic murmur at the apex; right lung dull at apex. Breath sounds harsh and high-pitched, expiration prolonged. A few sibilant râles at base. Abdomen scaphoid and tender at costovertebral angles. Palpation showed a firm indefinite mass in the epigastrium above and to the left of the umbilicus. Knee jerks absent. Weight, 88 pounds. Wassermann reaction four plus positive. Tuberculin reaction negative. No report on gastric contents. Wassermann on husband showed four plus positive.

Roentgen Examination.—This revealed a peculiar break in the bismuth shadow at the pyloric end of the stomach; further examination showed the peculiar filling defect in the pyloric end of the stomach to be permanent, indicating some infiltration of the stomach wall very much as occurs in a new growth (Fig. 3). At the sixth hour there was a distinct residue in the stomach, the shadow of which measured 1½ inches in diameter. The filling defect still persisted in the pyloric end of the stomach, especially along the greater curvature. At the twenty-fourth hour there was a trace of bismuth still remaining in the stomach.

Operative Indications: Pyloric obstruction with persistent vomiting.

Operation.—Jan. 27, 1915, a posterior gastro-enterostomy was performed, with excision of gland and portion of stomach wall for examination.

Pathologic Findings.—Extending from the middle of the greater curvature to the pylorus was an irregular mass involving the entire thickness of the stomach wall in such a way as to pucker the pyloric portion of the stomach, thereby causing stenosis of the pylorus. This mass was doughy in feel and the peritoneum covering it was edematous. There were numerous glands in the gastrocolic omentum, the greater omentum and about the greater curvature. No special changes were noted in the appearance of the liver.

Convalescence was straightforward with mixed treatment and neosalvarsan. The patient was discharged Feb. 25, 1915. Roentgen examination one month after operation showed that the gastro-enterostomy was working, but the deformity at the pyloric region of the stomach still persisted.

Pathologic Report.—Microscopic Examination: The gastric mucosa shows congestion, edema and dense cellular infiltration of the glandular structures. The glands themselves are much atrophied, especially in the deeper layers, where they are completely involved in the infiltration. Remnants of atrophic glands are found in the submucosa. Very little of the muscular coat is included in the material received at the laboratory. In the submucosa there is a very dense infiltration entirely replacing the normal structures, composed of flat endothelioid lymphocytes and diffuse tuberclelike masses. These tubercles contain large giant cells of the Langhans type. The tubercles are not quite so well defined as those seen in tuberculosis, and yet the structure is rather more rich in cells and giant cells than the ordinary gumma. The vascular lesions are not wholly characteristic of syphilis, but there is a certain amount of subendothelial proliferation, and in some places the vessels are obliterated by a growth of new endothelial cells. There is but little perivascular infiltration, especially in those areas outside of the specific lesion. Practically no necrosis is present in the lesion. Sections stained by the Levaditi method failed to show the *Spirochaeta pallida,* and no tubercle bacilli could be demonstrated. Sections from the lymph node show slight inflammatory reaction with moderate endothelial hyperplasia and distention of the lymph sinuses. The lesions in the mucosa and submucosa of the stomach are not characteristic of either syphilis or tuberculosis, but the absence of much necrosis and the diffuse nature of the infiltration, together with the vascular changes, point rather toward syphilis than toward tuberculosis. An absolute diagnosis, however, is not possible from the specimen received.

CASE 6.—*History.*—W. H., boy, aged 17, admitted to St. Luke's Hospital, Oct. 30, 1913, whose mother died of typhoid and father of arteriosclerosis, had been informed that he had inherited a certain disease from his father. For five years he had had discomfort in the region of the stomach. Eight months ago the pain became acute, but was intermittent in character, coming on two or three times a day without relation to eating. The patient had vomited at irregular intervals, but not persistently. He had no appetite, living principally on fluids. He was given four injections of salvarsan at the Rockefeller Institute beginning five weeks ago, followed by much improvement. He was able to eat more, but still suffered pain, which was attributed to a possible appendicitis. His general appearance was that of a poorly nourished boy, aged 17, but looking to be about 12. Pupils reacted sluggishly to light; teeth poor and slightly notched; cervical lymph nodes enlarged. Heart and lungs normal. Abdomen soft, normal to palpation. Knee jerks present. Weight 68 pounds. Height 5 feet ½ inch. Red blood cells 4,500,000. Hemoglobin 50 per cent.

Roentgen Examination.—This showed the stomach imperfectly filled out along the greater curvature (Fig. 4). The stomach was moderately dilated. There was a distinct residue at the sixth hour, and deformity of the pyloric third of the stomach which, with the previous findings and the history of positive Wassermann reaction, was sufficient to warrant a diagnosis of syphilis of the stomach. The patient continued on antisyphilitic treatment. He was discharged from the hospital, Nov. 7, 1913, and was referred back to the Rockefeller Institute, where he has been under continuous observation and treatment with the result that there has been a remarkable change in his condition.

Roentgen examination, March 2, 1914, showed that the deformity at the pyloric end of the stomach persisted. At the sixth hour there was a distinct residue in the stomach. March 18, 1914, the patient was again examined fluoroscopically and roentgenographically. This confirmed the findings of a deformity at the pyloric end of the stomach. There was less residue at the sixth hour than in the previous examination. March 14, 1915, Roentgen examination showed the pyloric end of the stomach still deformed, but at the sixth hour the stomach had emptied itself. At this time the weight had increased to 97 pounds; pain had disappeared and the patient was now able to eat and digest all sorts of food.

THE OPEN TREATMENT OF INFECTED WOUNDS

A PRELIMINARY REPORT

FREDERICK G. DYAS, M.D.
CHICAGO

The development of the surgical treatment of infected wounds has witnessed the use of a vast variety of substances and methods in the attempt to assist the healing powers of the individual. In the present aseptic era of surgery the treatment of an infected wound means in most cases the establishment of adequate drainage by various means and the application of voluminous dressings, either dry, sterile or moist antiseptic.

Pathology teaches us, and it is within the experience of every medical man, that the destruction of tissue caused by moist gangrene is far greater than that caused by dry gangrene. With this fundamental truth in mind I have endeavored to convert wounds, which in every way corresponded to moist gangrene, into areas of dry gangrene. Everyone is familiar with the crude methods employed by the Indians and other savage tribes for the preservation of carcasses of animals killed. These carcasses are placed high above the ground on the limbs of trees in order that the blood may drain from the muscles and that the tissue juices might be evaporated by the winds and sun. By this method meat may be preserved free from mold and putrefaction for a very long time.

It is a fundamental principle of bacteriology that heat and moisture are necessary for the growth and propagation of practically all pathogenic bacteria. Therefore, if it were possible to dry up the tissues and dehydrate the infected area, the invading organisms must be, if not entirely killed, at least greatly attenuated.

When an animal suffers a wound, usually in one of the extremities, it is a matter of common observation that the pus is licked from the suppurating area if it be within reach of the animal's tongue. No bandage is put around the affected area, which is exposed to the air and, in many cases, to the sunlight. As the result of this, one rarely sees the intensely infected wounds in the lower animals which one observes daily in a human being in the wards of a large general hospital. This is in harmony with the recent observations among the wounded on the battlefields of Europe. Infected wounds heal more rapidly under the influence of autogenous vaccines or serums, whether prepared scientifically or obtained by sucking the wound or chewing pus soaked bandages.

Furthermore, the treatment of all degrees of burns by the open air method is practically the uniform procedure in the hands of every experienced surgeon. By this method there is a rapid desiccation of the sloughing tissues and a drying up of the foul discharges. The absorption of toxic materials into the general circulation is very much diminished. The invading organisms which always infect the burned surfaces are markedly attenuated. The granulations are left free to grow and cover over the denuded area without being torn off daily with the dressings by entanglement of the protoplasmic elongations in the meshes of the gauze. Furthermore, the tissues are not macerated by the continuous local pus bath.

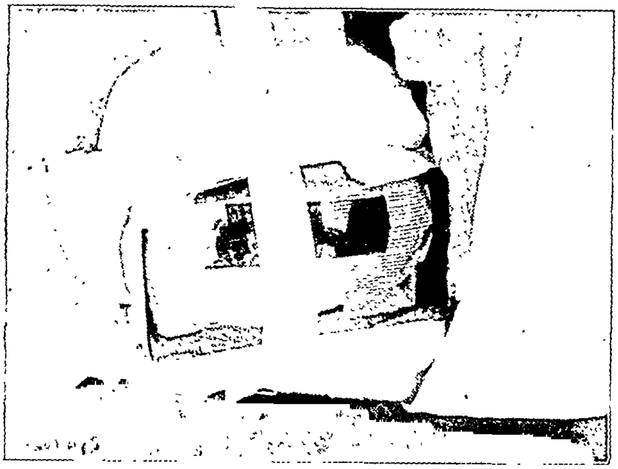

Fig. 1.—Infected appendectomy wound.

Rollièr has produced remarkable results in the treatment of surgical tuberculous affections which have gone to the worst stage by placing these patients with their lesions exposed to the air and sun. Most of these cases, naturally, were secondarily infected with pus organisms.

These results in the treatment of burns and surgical tuberculosis led me to undertake the treatment of old suppurating wounds by the open air method. This has been done now in several cases in Cook County Hospital with the most gratifying results. The patient is put to bed, if the affected area be on the lower extremity, as so frequently occurs in the form of foul varicose ulcers, a cradle is placed over the limb and thrown across this is a piece of mosquito netting to prevent contamination by flies or bits of dried tissue flying in the air. In some of these cases I have endeavored to hasten the healing process by playing the current of air from a small electric fan directly on the denuded surface for a period varying from fifteen minutes to half an hour four or five times daily. The rapidity with which the discharge diminishes and the odor disappears is nothing short of wonderful. The tissues on the old ulcer become rapidly dehydrated and in many cases become mummified, taking on the appearance and consistency of the bark of a tree.

At first the patients resent the fact that no dressings are put on the infected area, and complain that nothing is being done for them. After the lapse of two or three days, however, when they can see for themselves the rapid improvement which is going on, and can note the absence of the foul odor and the diminution in the discharge of pus, they express themselves as delighted at not having to undergo the painful dressings and the discomfort caused by pus soaked bandages.

In the process of desiccation, frequently large crusts or placques of inspissated serum, pus and epithelial and connective tissue elements are shed, leaving a clean and granulating surface which is devoid of pus. The surrounding tissues partake of the general improvement; the swelling and edema subside coincidently with the desiccation of the suppurating area.

Furthermore, this plan of treatment has the advantage of marked economy from the standpoint of dressings. The only attention which the wound requires on the part of the attending surgeon or intern is the occasional raising of crusts to allow the escape of pus or serum, or perhaps the occasional irrigation for a short time of some stubborn area. No dressings whatever are used. In some of our cases we have used, as in the treatment of burns, an inert desiccating powder which forms a cement-like substance with the desiccated tissues and serum.

The laity insist that bandages be put on wounds, and will naturally feel that the attending surgeon fails in fulfilling his whole duty unless he can make the patient who is suffering from a profuse, foul-smelling discharge acceptable in society. In other words, the treatment of these conditions is to be carried on in private. Under present day conditions it would, of course, be impossible for a patient with a putrefactive odor to expose a sloughing wound in public. Therefore, this treatment must always be confined to hospital or to home practice and no doubt this will in many cases prevent its use.

In ambulatory cases the wounds were protected by sterilized wire screening appropriately bent and the sharp points of the wire covered by strips of adhesive plaster.

The following histories are from the patients treated by me in Ward 10 in the Cook County Hospital:

REPORT OF CASES

Case 1.—Man, aged 51, a laborer, was admitted to the Cook County Hospital, March 8, 1915. Six years previously he was struck on the anterior surface of the right leg, receiving a wound which never healed, but slowly increased in size. He was able to continue working until six months prior to admission, when the ulcerated area was about as large as one's hand. At this time it began to increase more rapidly, and in spite of treatment the condition became constantly worse.

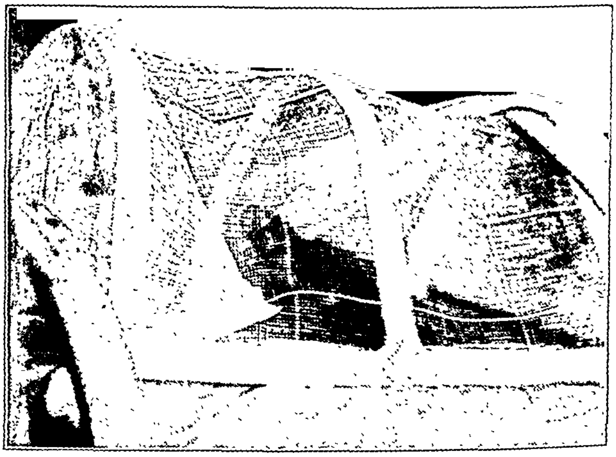

Fig. 2.—Infected wound of foot.

Past History.—Has had varicose veins of the right leg for ten years; has had rheumatism for seven or eight years. Denies syphilis; admits Neisserian infection seventeen years ago.

This man was put to bed and the treatment previously described given. Within five days, practically the whole ulcerated area had crusted over. The foul odor had entirely disappeared, as had also the edema and swelling. The crusts practically covered the entire denuded area and the patient was free from pain.

Case 2.—A laborer, male, was admitted to the County Hospital in November, 1914. He had had varicose ulcers of the left leg for three years. The patient was put to bed and the open air treatment instituted. Within two weeks the ulcerated area had almost healed and the patient left the hospital.

Case 3.—Man, a cook by occupation, was admitted to the County Hospital in September, 1914. He had varicose veins of both legs and a large, foul ulcer on the left leg. Open air treatment was immediately instituted, with the result that the ulcer healed within three weeks and the patient left the hospital apparently cured.

CONCLUSIONS

1. The advance made in the treatment of old suppurative wounds has not been in keeping with the advances made in other departments of surgery.
2. The treatment of suppurating areas by voluminous dressings, either sterile or antiseptic, macerates and devitalizes the tissues, fosters the development of the pathogenic flora and does not assist in the repair of the tissue.
3. It is always of advantage, when possible, to convert a moist into a dry type of gangrene. Therefore, the desiccating influence on the wound of the atmospheric air, in the absence of moist coverings of any sort, tends to attenuate infecting organisms.
4. The method is safe, economical and is in keeping with nature's own processes as observed in the lower animals.
5. The patient's period of convalescence is shortened and he absolutely suffers no pain.
6. In my experience, both in the treatment of wounds and of burns, the danger of contamination from the atmospheric air is negligible.
7. The addition of plenty of sunshine would be a valuable asset, but is not readily obtainable.

Coal Mine Fatalities in 1914.—According to a bulletin of the Bureau of Mines in 1914 there were 2,451 fatalities in the coal mines of the United States as compared with 2,785 in 1913, a decrease of 334. The principal decreases were in fatalities from coal dust explosions, 96 per cent., haulage 11 per cent. and falls of roof and pillar coal 10.6 per cent. The net decrease in underground fatalities was 365, or 14 per cent., a saving of one life for each day of the year. There were 331 fatalities from gas explosions, an increase of 240 over 1913. There were slight increases in fatalities from explosives, electricity and shaft accidents, but a net decrease for both underground and surface accidents of 12 per cent. The estimated total number of employees for the year was 742,868 as compared with 747,644 in 1913. The fatality rate was therefore 3.30 per thousand men employed in 1914 as against 3.73 in 1913. The amount of coal produced in 1914 is estimated to be 10.5 per cent. less than in 1913, but the fatality rate per one million tons of coal was 4.89 in 1913 and 4.81 in 1914. Improvement was due to many causes, not the least of which was said to be the cooperation of all concerned.

HYPERTROPHIES OF THE ENDOMETRIUM *

WILLIAM SISSON GARDNER, M.D.
Gynecologist to Mercy Hospital
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In the study of the pathologic conditions of the endometrium which are not the results of infection, several are encountered that may be confused with each other or with the normal endometrium or with adenocarcinoma of the body of the uterus. The premenstrual endometrium is the normal form most frequently mistaken for some pathologic state; but occasionally a hypertrophic endometrium with narrow contracted glands, unless care is exercised, may be mistaken for a normal postmenstrual type. Among these noninflammatory hypertrophies are those associated with extra-uterine pregnancy, with ovarian growths and a third group for which we have at present no adequate explanation and which may be divided into two groups, the glandular and the interstitial.

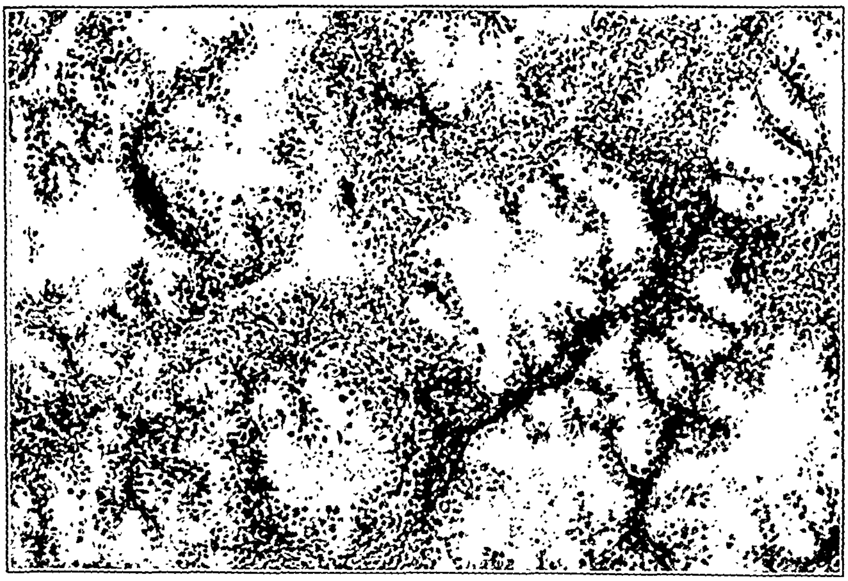

Fig. 1.—The endometrium of extra-uterine pregnancy. All the characteristics of the premenstrual type of endometrium are exaggerated.

On account of the frequent references that are made to endometritis and hypertrophy of the endometrium associated with uterine fibroids and retrodisplacements, I have included in this paper the results of my investigation of the endometrium as it is found in association with these two lesions.

Nonmalignant overgrowths of the endometrium are comparatively common. In some instances the whole endometrium is thickened; in others there are found pedunculated masses of greater or less extent. They occur most frequently between the ages of 40 and 50, but are also found at periods of life both earlier and later than this.

The symptom that attracts the attention of the patient is hemorrhage. This hemorrhage is a persistent but not a profuse flow in most cases, resembling in quantity a rather free menstrual period and continuing for weeks or months. In this it is not unlike the bleeding due to adenocarcinoma of the body of the uterus, and since the age incidence is the same, it is very important that we should have some definite means of distinguishing between them. The only reliable method is by the proper interpretation of microscopic examinations of uterine scrapings.

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* Read at the Annual Meeting of the Medical and Chirurgical Faculty of Maryland, April 28, 1915.

EXTRA-UTERINE PREGNANCY

Figure 1 is the type found in extra-uterine pregnancy. Here we have every characteristic of the premenstrual endometrium magnified. The stroma cells are large and in appearance approach the decidual cells. The glands are very much dilated and very irregular in outline. The epithelium lining the glands is swollen and projects into the caliber of the glands, producing an exaggerated saw-toothed appearance.

This specimen was curetted from a woman of 24 who had bled excessively at each of the four last menstrual periods. The last flow ceased June 16, and she was curetted on the 28th, twelve days after the flow stopped. Under ordinary conditions one would expect to find an endometrium of the intermenstrual type. The history did not indicate an extra-uterine pregnancy, but the microscopic examination of an enlarged tube removed after curettement showed chorionic villi.

What appears to happen in extra-uterine pregnancy is the continuation of the same action on the endometrium that produces the premenstrual type; the continued action causing an exaggeration of the ordinary type. There is little doubt that these changes are due to the internal secretion of the ovary.

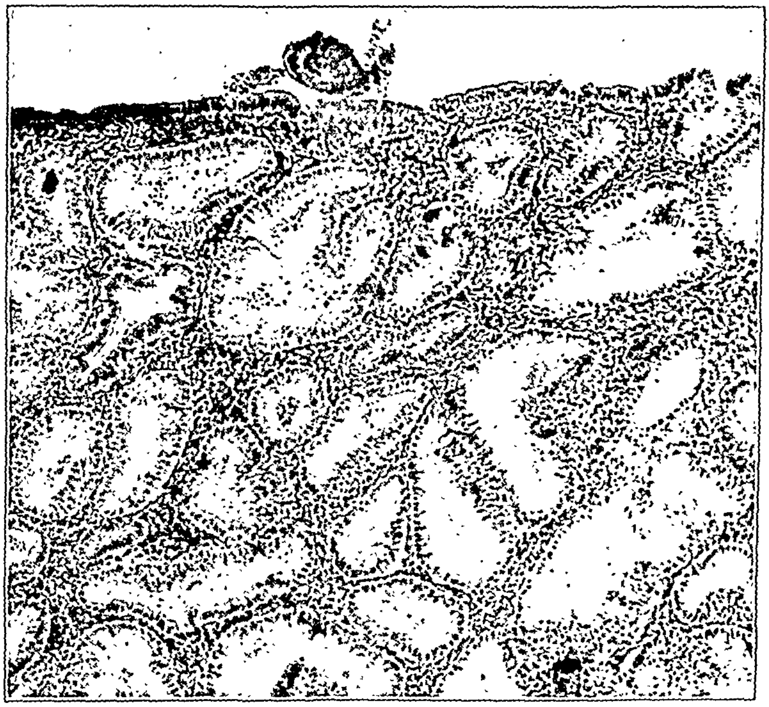

Fig. 2.—Ovarian type. Found when the uterine bleeding is due to an ovarian lesion. Glands dilated; stroma apparently diminished.

OVARIAN TYPE

Figure 2 is a type which has been found quite constantly in women who had been bleeding and where some marked ovarian lesion was present. This particular section was made from the scrapings of a young woman of 23 who had been bleeding constantly for several weeks. In one ovary there was a graafian follicle cyst and in the other a small multilocular cyst.

The section shows numerous dilated glands occupying the whole depth of the endometrium. Their outlines are fairly regular. In the lumen of the glands are some blood and much broken down epithelium. The epithelium lining the glands is in a single layer and somewhat enlarged, but does not buckle out into the caliber of the glands. The stroma cells are normal in size, but apparently decreased in number; that is, the volume of tissue between the glands is relatively small, and this makes the impression that there has been an actual atrophy of the stroma cells. In reality the increase in depth of the endometrium due to the dilatation of the glands distributes the stroma over a greater area than normal, and this gives the appearance of decrease in quantity. Both the epithelial cells and the stroma cells are deficient in chromatin. There is a slight increase in the small round cells.

The endometrium of this type resembles somewhat the normal premenstrual type, but is easily distinguished from it on superficial examination by the greater regularity of the outline of the glands and the apparent thinning out of the stroma. A closer examination shows that while the glands are dilated, the epithelial cells lining them are smaller and more regularly distributed than in the premenstrual type, and that the decrease in the stroma is only apparent and not actual.

GLANDULAR HYPERTROPHY

The true adenoma is shown in Figure 3. This illustration was taken from a case in which the growth projected through the cervix. The patient was 57 years of age and had been bleeding almost constantly for seven years.

This growth is characterized by the great increase in the number of glands associated with a moderate increase in the stroma. The glands are lined by a single layer of epithelial cells which have very large nuclei that contain much chromatin.

The uterine adenoma is very closely related to adenocarcinoma of the body of the uterus, and may be confused with it. The essential points of difference are that the epithelial cells in the glands of an adenoma are uniform throughout the growth, and present the same general appearance as in the normal uterine glands. And while the glands of a given specimen may vary some in caliber, the general appearance of all is the same. On the other hand, the epithelial cells lining the gland spaces of an adenocarcinoma are very irregular both in size and in chromatin content. Also the epithelium tends to pile up within the glands and later to break through into the stroma. No two of the gland spaces in an adenocarcinoma present the same kind of outline.

INTERSTITIAL HYPERTROPHY

Interstitial hypertrophy of the endometrium (Fig. 4) much more commonly involves the whole endometrium than does the glandular form. It is characterized by a great increase in the stroma and by very little if any increase in the number of glands. The glands may be so narrow as to resemble those of the postmenstrual endometrium, or they may be much dilated. What is most common is to find narrow and dilated glands irregularly distributed throughout the entire thickness of the endometrium. Without reference to the caliber of the glands, the epithelium lining them resembles that in the postmenstrual endometrium and retains its regularity of distribution. There is an entire absence of the saw-tooth appearance of the postmenstrual endometrium, as well as the piled up, irregular epithelium, that is so characteristic of adenocarcinoma.

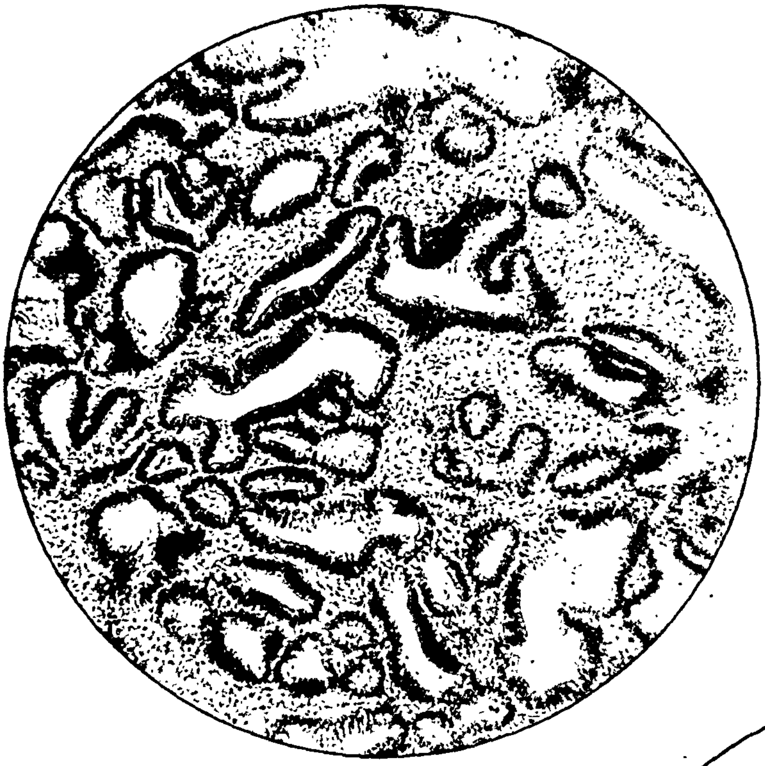

Fig. 3.—Glandular hypertrophy: adenoma. Great increase in the number of glands; epithelium of the glands regularly distributed.

This type of hypertrophy of the endometrium is not infrequently associated with marked hypertrophy of the uterine walls. In some instances the thickening of the uterine walls may be so great that on bimanual examination one may think that the enlargement is due to a submucous or interstitial fibroid; but on section the walls will be seen to be uniformly thickened, and the microscope shows that they are made up of normal cells.

THE ENDOMETRIUM WITH RETRODISPLACEMENT

The general appearance of the endometrium in retrodisplacement varies with the period of the menstrual cycle, but shows an almost constant increase above the normal of small round cells. The increase is in the scattered round cells and not in the defined groups. Of the endometriums examined, 50 per cent. were of the interval type and the other half were about equally divided between the premenstrual and postmenstrual types. Fifty per cent. of all slides showed marked congestion. In a few instances there was an increase of spindle cells. It is probable that these cells were the result of an old infection, but it was not always possible to decide this point.

The changes found in the endometrium of the retrodisplaced uterus are apparently the result of interference with circulation, due to the position of the uterus, and not caused by any active process. Before this was recognized, we followed the dictum that practically every retrodisplaced uterus had an infected endometrium which demanded curettage. Realizing several years ago the incorrectness of this teaching, we now curet very few patients on whom it is necessary to operate for retrodisplacements but rely on the correctness of the position of the uterus to relieve the symptoms of leukorrhea and menorrhagia due to the passive congestion of the endometrium.

THE ENDOMETRIUM WITH FIBROIDS

The endometrium associated with uterine fibroids acquires no characteristic appearance. All types are seen and none of them bear any direct relation to uterine hemorrhage. For example, of three cases in which the endometrium was of the senile type, one patient was menstruating normally each month, one was bleeding frequently and profusely, and one had lost no blood for five months. The variation in type is just what would

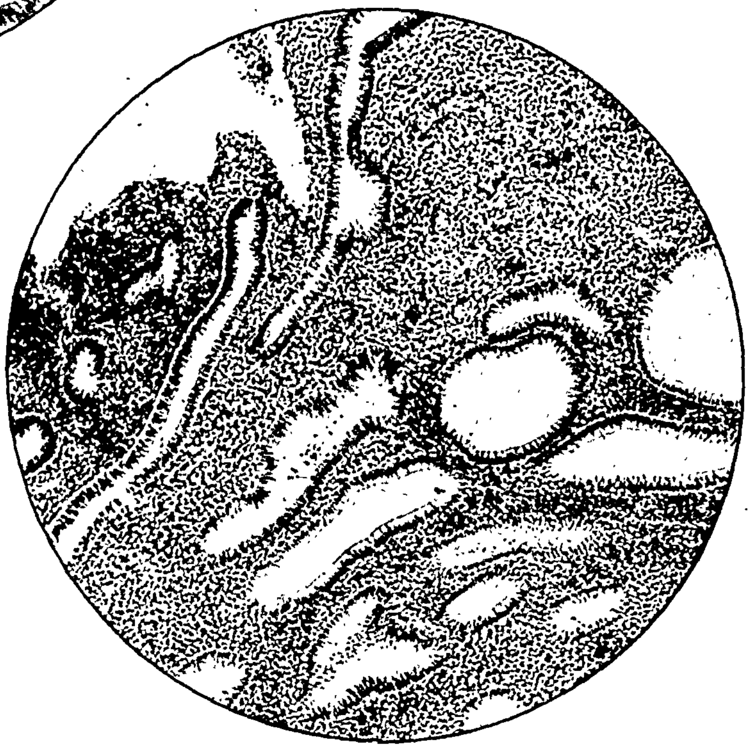

Fig. 4.—Interstitial hypertrophy. Stroma much increased in quantity; glands irregular in caliber and lined by low columnar epithelium.

be expected when we bear in mind that the hemorrhage caused by fibroids is due to a growth in the uterine wall and the consequent local disturbance of the circulation, and has no relation to the changes in the endometrium which result from ovarian influence.

6 West Preston Street.

PSEUDOMUCINOUS CYST OF THE APPENDIX

ITS RELATION TO PSEUDOMYXOMA PERITONEI [*]

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CHICAGO

Among the rarer lesions of the vermiform appendix, pseudomucinous cyst is of particular interest because of its peculiar pathologic nature, its mode of development, and the complications to which it sometimes gives rise. It results from the slow accumulation of an altered secretion of the appendix produced by a mild inflammatory process, and usually unaccompanied by subjective symptoms. There is a direct relation between the development of the disease and the normal involution of the appendix, as most of the cases have occurred between the ages of 35 and 50, or during the period in which retrogression with the obliteration of the appendix lumen takes place.

Very little was known about the normal secretion of the appendix before the recent experimental work of Heile,[1] which showed it to be of the same nature as the secretion of the cecum. It possesses both tryptic and amyloptic ferments which were demonstrated not only in the appendix secretion but also endocellularly in the mucosa of the organ. An internal secretion of hormones was also extracted from the wall of the human appendix which possessed the power of stimulating peristalsis of the intestines when injected into rabbits.

During an acute attack of appendicitis, the fluid which accumulates is an exudate varying in nature from serous to purulent or ichorous. The accumulation either disappears rapidly with the subsidence of the acute inflammation, or escapes into the surrounding peritoneal cavity through a perforation. Persistence of this type of fluid with chronic cyst formation is rare. However, cases are reported of stenosis of the proximal portion with pus accumulation in the part beyond leading to the formation of chronic empyema of the appendix, which never reaches a very great size, and possesses a much thickened wall similar to an empyema of the gallbladder. Chronic hydrops following milder attacks in which the appendix is filled with a simple serous exudate is also very rare, because the mucous membrane is preserved in such cases, and its secretion changes the character of the contents so that pseudomucinous cysts are nearly always the result.

There is much uncertainty as to the cause of the stenosis and retention of secretion. Normal involution of the appendix begins any time between the ages of 18 and 40, and on an average by the 39th year the mucous membrane and lymphatic tissue have disappeared at the expense of an increased submucous fibrous tissue, and the lumen of the appendix is obliterated. According to Sprengel, this obliteration of the lumen nearly always begins at the distal portion and progresses slowly toward the base. Faber examined longitudinal sections of appendixes undergoing involution, and reports that there are always signs of active inflammation with granulation tissue in the mucosa and submucosa about the point of obliteration. Sprengel also believes that involution of the appendix is usually accompanied by an inflammatory process; on the other hand, Ribbert and his followers assert that it is unaccompanied by inflammation. Possibly in some cases this process may begin at the proximal end of the appendix and thereby lead to retention and distention of the distal portion. Acute inflammation may destroy a part or all of the mucosa and lead to rapid obliteration of the lumen. It is probable that inflammation and involution are associated in varying degrees in the causation of the condition.

In many cases there is no history of preceding attacks of appendicitis, and in those with previous disturbance the attacks have been mild. Usually the lumen of the appendix is obliterated at the seat of constriction, but in some instances it is patent so that some of the gelatinous secretion may escape into the cecum. The amount of the appendix involved is variable. Usually it is almost the entire extent of the organ, the constriction being located close to the cecum; but it may be located anywhere along its course with dilatation of the part beyond. Rarely the lumen of both proximal and distal portions is obliterated and the middle portion dilated. In other instances the appendix remains little or undilated while one or more diverticula form along its course, which may reach considerable dimensions, as in the specimen reported by Dr. Herb,[2] now in the museum of Rush Medical College, in which the diverticulum measured 7 cm. in diameter. The changes in the wall of the dilated portion are variable. When moderately distended there is very little variation from the normal, except that the folds of the mucosa are obliterated. When the dilatation is more extensive, the wall becomes very thin and transparent in places, while in others there may be fibrous thickenings in the serosa. The mucous membrane is very much thinned and in places disappears. Along its surface may be seen secreting and broken down cells which appear to be giving rise to the peculiar contents of the lumen. The muscle fibers gradually atrophy and eventually are replaced by fibrous tissue. In very large specimens the wall consists of fibrous tissue which may be largely devoid of a mucous lining. The lumen is filled with a transparent gelatinous material which in some instances is thin, but usually is quite thick and escapes from the incised appendix either very slowly or not at all. It contains no feces, and in most instances in which bacteriologic examinations have been made, they have been negative. Chemically, the material gives the tests for *pseudomucin.* When acidulated with mineral acid and heated, a substance is precipitated which reduces copper salts; but no precipitation occurs on heating with acetic acid. Formerly some of these cases were mistaken for colloid carcinoma of the appendix, but histologic examination fails to reveal the presence of a tumor.

Clinically, the condition is remarkably free from symptoms It usually develops slowly without pain, but rarely following a mild attack of appendicitis. Occasionally there is a dull ache or light colicky pains in the appendix region. Sometimes the patient's attention is first attracted by the appearance of a mass in the right lower quadrant of the abdomen which on examination is smooth, oval or spherical, movable, and may extend beneath the brim of the pelvis. The condition is illustrated by the following case from the service of Dr. D. D. Lewis at the Presbyterian Hospital, to whom I am indebted for the privilege of making this report:

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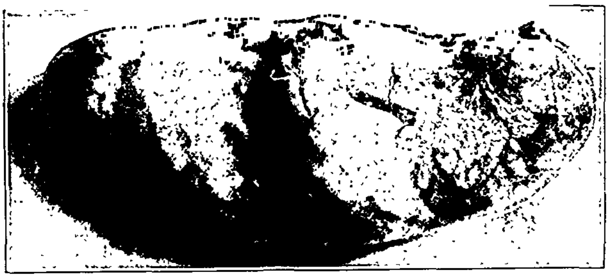
[*] From the Surgical Clinic of Rush Medical College.

[1] Heile: Beitr. z. klin. Chir., 1914, xciii, 520.

[2] Herb: Tr. Chicago Path. Soc., 1907.

V. N., woman, aged 36, married, with no history of previous abdominal disturbance, for a year had noticed a lump in the right lower quadrant of the abdomen which had gradually increased in size. It gave her no trouble until three months before, since which time there had been a dull ache in the region, but never any acute attacks of pain. Examination showed a visible and palpable elongated mass in the right lower quadrant, parallel to, and just above Poupart's ligament. It was movable and slightly tender and could be felt on vaginal examination. Under the diagnosis of an ovarian cyst, a median abdominal incision was made and a cystic tumor delivered from the right side of the pelvis. Its only attachment was found to be at the base of the cecum, and a mesenteriolum was present which served to identify it as a cyst of the appendix. The pedicle was clamped, the appendix cut away and the stump invaginated. The abdominal cavity was otherwise normal, there being no signs of peritoneal involvement.

The tumor (shown in the accompanying illustration) is a sausage-shaped mass 17 cm. long and 21 cm. in its greatest circumference. It is slightly curved along the border of the mesenteriolum, which extends about half its length. Blood vessels from the mesentery run out into the wall on either side and toward the tip. The surface of the appendix in most of its extent is smooth, but toward the end and in several places along its course there are slight bulgings of the wall, which in these regions is very thin and transparent. Between these slightly herniated portions, and particularly opposite the mesentery, there is considerable fibrous thickening of the wall, and some of the dense, opaque areas suggest calcified plaques. The appendix is filled with a thick, clear, gelatinous material which escapes very slowly from the excised windows of the hardened specimen. On chemical examination it proved to be pseudomucin, as it is not precipitated by the addition of acetic acid and does not coagulate on boiling but acquires a milky hue. Alcohol produces a coarse, thready precipitate. The appendix at the neck of the cyst is of normal size and structure except for some fibrous thickening of the serosa. The lumen is patent.



Appendix, with base ligated.

Microscopically the wall consists of fibrous tissue lined by an incomplete smooth mucous membrane, the regions where the wall protrudes being entirely devoid of a mucous covering. The cells of this layer are variable, the superficial ones being irregular and filled with mucus, which they seem to be liberating in the lumen by disintegration. In numerous places, but particularly where the wall is thickest, there is calcification of the submucous portion. All traces of muscularis have disappeared. *This is one of the largest specimens thus far reported.*

An attempt was made to produce the condition experimentally in dogs by obliterating the lumen of the proximal portion of the appendix. Seven animals were operated on in the following manner:

After removal of the contents of the appendix by stripping out, a longitudinal incision was made through the wall at its base, the mucosa dissected up and divided transversely, and each end closed with a purse-string suture. The incision in the muscularis and serosa was then closed, leaving the lumen obliterated for a distance of about 1 cm. In none of the cases were the blood vessels in the meso-appendix interfered with. Six of the animals died in from four to seven days, and at necropsy each showed a gangrenous appendix distended with an ichorous exudate similar to the gangrenous portion frequently seen beyond a fecal stone in human appendicitis. In four instances an extensive local and in two a general peritonitis was found.

One dog survived and was killed at the end of two months. At necropsy it was found that the operation had been unsuccessful, as a narrow lumen had reformed through the obliterated portion, and the appendix secretions escaped into the cecum without producing any dilatation.

Evidently the obstruction is produced too suddenly and accompanied by a too severe and extensive traumatism to bring about the condition of retention cyst formation, as gangrenous infection resulted in every case in which the lumen was successfully closed.

Complications of the disease are of interest. Rarely an acute inflammation of the cyst develops which may necessitate immediate surgical interference. A striking condition known as pseudomyxoma peritonei results from rupture of the cyst, with the escape of its contents into the peritoneum. This condition was first described by the gynecologist Werth as coming from the rupture of a colloid cystoma of the ovary; but subsequent observations showed that it may come from other organs, as the gallbladder and intestinal diverticula. Frankel, in 1901, described the first case arising from a perforated colloid cyst of the appendix. Since then about twenty cases arising from the appendix have been reported.

Perforation occurs usually without any accompanying symptoms, and the pseudomucinous material becomes disseminated over the peritoneal surface in various-sized masses. These may be confined to the vicinity of the appendix, but usually they are found in the pelvis and over the peritoneum of the lower part of the abdomen. The peritoneum may be irritated and throw out an investing fibrous sheath by which the particles become attached to it. The colloid material probably never contains living epithelial cells (as when derived from the ovaries) which proliferate and continue their secretion. The opening in the appendix usually persists so that there is a more or less constant escape of material into the abdominal cavity. In a few instances it has been found closed at operation or necropsy. These patients usually have little or no symptoms, as the contents are sterile. Loth recently reported a case in which rupture was accompanied by acute abdominal symptoms, and slight temperature and pain continued irregularly for four months, when the appendix was removed. Removal of the cystic appendix results in a cure, as the source of the material is removed and the remaining portion is silently absorbed. This peculiar complication was illustrated by a case in which Roberg[3] operated in 1907, the specimen of which is in the museum of Rush Medical College.

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[3] Roberg, O. T.: Tr. Chicago Path. Soc., 1908, p. 180.

The patient was a woman aged 46. She came for advice because of a left inguinal hernia, the presence of a palpable tumor in the right lower quadrant not having been noted. At operation the peritoneum was studded everywhere with gelatinous masses, large numbers of which were removed from the hernial sac and from the culdesac of Douglas. The cystic appendix, which measured 13 cm. in length, was filled with a pseudomucinous material, and a small perforation existed through which the gelatinous contents escaped into the peritoneal cavity. The condition was at the time thought to be colloid carcinoma of the appendix, but following the operation all symptoms disappeared and one year ago the patient was living and well.

122 South Michigan Avenue.

THE EXTERMINATION OF THE MOSQUITO

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Those who undertake for the first time the work of mosquito extermination are confronted with various theories concerning the means by which this important protective measure may be successfully carried out, which are often perplexing. It is quite necessary that these theories should be promptly dealt with, in order that methods which have no practical value may be eliminated from the plan of procedure.

Included among these theories is the widespread belief that birds, fishes, bats, aquatic fowls, etc., render valuable aid in the extermination of the mosquito. Some years ago, it was seriously recommended that certain birds be propagated for this purpose, and more recently this has been suggested in connection with bats. The truth is that the number of mosquitoes devoured by birds and bats has no practical effect in diminishing the danger and annoyance caused by this insect. It is the presence of mosquitoes rather than the number involved which calls for action.

An attempt to propagate birds or bats for the purpose of exterminating the mosquito would be not only a foolish but also an unscientific procedure, and would end in disappointment. It may be pertinently asked, Who would attend to the propagation, care and distribution of these creatures in connection with this work, and what reason is there to believe that they would remain in sections where they are most needed? For neither one is dependent on the mosquito for sustenance. Besides, an enterprise such as this, assuming it could be reasonably carried out, would sooner or later cause a plague of birds and bats, and become an intolerable nuisance, particularly in the case of the latter, for there is no more unwelcome or repulsive visitor than the bat. Furthermore, the money spent in carrying out such an impracticable measure would go far toward defraying the expenses of destroying the breeding places of the mosquito.

This theory is about on a par with the belief that buzzards render valuable aid in cleaning streets and in the removal of garbage and other filth. To my personal knowledge, these birds were to a certain extent depended on for this purpose in Vera Cruz not many years ago, and until this medieval practice was abandoned, and modern sanitary measures enforced, Vera Cruz was the home of yellow fever.

The danger of these various impracticable theories concerning the extermination of the mosquito lies chiefly in the fact that they distract the attention of the public from the real means by which this work may be successfully accomplished.

There is also a popular theory that fish and aquatic fowls render valuable aid in the extermination of the mosquito by the consumption of the larvae found in bodies of water where they abound, and it is advocated that small fish be propagated for this purpose.

In order to understand more intelligently the impracticability of this theory, it is necessary to know something of the habits of mosquitoes, their breeding places, etc. For this reason, it may be said that in the United States, these insects are divided into two classes: the inland mosquito, of which the *Stegomyia* or yellow fever mosquito, and the *Anopheles* or malarial mosquito are types; and the *Sollicitans* or Atlantic Coast mosquito, commonly known as "striped legged" or "salt water swamp" mosquito.

The inland mosquito is the one most commonly dealt with, for it may be found in almost every state of the Union; whereas, the striped legged mosquito breeds on the salt marshes along the Atlantic Coast.

Some important and interesting facts have been obtained in recent years pertaining to the habits of these two groups of mosquitoes. In connection with my own work on Staten Island, conclusive evidence was presented, as a result of a careful and extended investigation, that a distinct line of demarcation exists between the breeding places of the inland and coast mosquito; that is, they do not, as it was formerly supposed, occur in the same places; for the striped legged breeds only on the salt marshes along the coast, while the inland mosquito never breeds in these localities, but in the interior. These results are in full accord with the experiences of the late Dr. John B. Smith, state entomologist of New Jersey, than whom no one has more carefully and exhaustively studied the habits of these insects, or has contributed more to their extermination.

This knowledge renders the work of mosquito extermination far easier; particularly along the Atlantic Coast; for if the striped legged mosquitoes are present, it may be depended on that their breeding places are not in the interior, but must be sought for in the salt water swamps. Yet this variety is often found inland, probably of its own volition; and in this way differs from the inland mosquito, which most likely prefers to remain close to its breeding place.

I suspect that the apparent migratory habit of the striped legged mosquitoes is due to the fact that they get beyond the confines of their breeding place and cannot find their way back, and continue their flight to obtain the food most suitable to them, which is probably the vegetation found in the salt water swamps. If this nourishment were obtainable everywhere I question whether they would go further from their homes than the inland variety. The fact that the striped legged mosquitoes have been found a number of miles at sea is satisfactorily accounted for by adverse winds.

Those who are not familiar with the vast area of swamp land along the Atlantic Coast can form no satisfactory idea of the enormous breeding places which these great stretches of land afford. The ground is always water soaked and spongy from the incoming tide, and surface water cannot escape by absorption. These swamps are sometimes traversed by natural ditches or creeks frequently containing very small fish, which regard as a choice morsel the larvae which find their way to these streams; but the number destroyed in this way is so infinitesimally small compared with the great and inexhaustible supply produced on these extensive breeding places, often miles in extent, that it offers no practical value in the extermination of mosquitoes of this variety; nor for various reasons would the propagation of small fish in these places, even if it could be reasonably carried out, make any practical difference in the result.

The inland mosquito will breed in almost any receptacle which contains water, preferably that which is stagnant and polluted; for the latter is rich in organic matter, and the larvae are voracious eaters. The fact that the inland mosquito breeds in unsuspected places, frequently not detected, is one reason why crusades against this insect are often unsuccessful.

Contrary to the general belief, mosquitoes, as a rule, do not breed in large bodies of water, but prefer small pools, where there is an abundance of vegetation and nourishment, and where they may be quiet. Mosquitoes are essentially vegetarians, notwithstanding the fact that the females, the only ones which bite, subsist largely on blood.

It is true that there are immense fresh water swamps found inland, particularly in the southern part of the United States, and these are most prolific breeding places; still these swamps, to a great extent, consist of comparatively small collections of surface water which are shallow and rich in vegetation. It may be added that while mosquitoes do not, as a rule, breed in large bodies of water, they lay their eggs along their borders, particularly if there is plenty of vegetation and the water is still.

While the *Anopheles* or malarial fever mosquito sometimes breeds in the same receptacle with other inland mosquitoes, the most common of which are the *Culex "pungens"* or *"pipiens,"* it is more often with its own kind. I have frequently found the anopheles' larvae in the open country in small collections of water covered with green scum, or having an abundance of vegetation and shade. These conditions are also found in the inland swamps already referred to.

The *Stegomyia,* or yellow fever mosquito, prefers to breed in built up communities, and in all sorts of receptacles which are favorable to insanitary conditions. During a visit to Havana some years ago, I was informed by a resident that he was unable to account for the presence of the *Stegomyia* in his house for a long time, but by continued and diligent search, found that the mosquitoes were breeding in small tin cans in which the legs of the refrigerator were placed as a protection against rats.

Mosquitoes have their likes and dislikes as to the selection of their breeding places. Just why they favor certain parts of the same section of the country for their propagation and avoid others is not fully known, but it is quite likely because of climatic conditions, or the character of breeding places and of the vegetation or nourishment which is available. That one place is more favorable than another cannot be doubted, for in some parts, mosquitoes appear regularly each year in great numbers, while in other localities, although these insects are annually present, they are few in number and do not constitute a great annoyance. The latter condition is often erroneously attributed to the presence of certain birds, etc.

A distinguished physician has stated that he was led to believe from personal observation that ducks are valuable agents in the extermination of the mosquito, and has suggested that in this way they might be of aid in the prevention of yellow fever and malaria.[1]

I am quite sure that the varied, innumerable and often unrecognized breeding places of the inland mosquito to which I have referred will quite clearly indicate that but little dependence can be placed on birds, fishes, fowls or animals, or anything else in the extermination of this insect, *except the destruction of its breeding place.*

The experimental stage in connection with the extermination of the mosquito has long since passed, and no doubt remains that this important work may be successfully accomplished, provided proper means are employed, and provided that the work is under the direction and control of federal, state or municipal authorities. The brilliant results obtained in Cuba, in Panama and on the Roman Campagna may be cited as conclusive proof that the inland mosquito may be exterminated; and the success of the work on Staten Island, where about ten square miles of salt water swamp land was drained and freed from breeding places, furnishes indisputable evidence that the striped legged mosquito may be dealt with in the same way.

The extermination of the mosquito can be accomplished only by the destruction of its breeding place. If birds, bats, fishes and fowls are of some aid in this direction, so much the better; but no dependence should be placed on these creatures in the work of elimination.

There is but one way by which the breeding place of the striped legged mosquito can be successfully destroyed, and that is by the proper draining of the swampland where these insects propagate.

The extermination of the inland mosquito requires a different procedure, for in this instance, small and innumerable receptacles of every description are to be dealt with, and these must be detected and destroyed. This will require the greatest amount of patience, but the reward will compensate for the time and trouble expended.

Furthermore, this work must be uniformly carried out in the entire infested section; for if the breeding places are destroyed only here and there, and adjoining ones are left untouched, successful results cannot be obtained, for there will be sufficient breeding places left to supply mosquitoes for all purposes. It is to secure uniformity of action in this direction that makes it so necessary that the work of mosquito extermination should be under some form of official control.

A word may be said regarding the use of petroleum oil. This agent should be employed only for temporary purposes, and must not be accepted as a substitute for the permanent destruction of breeding places. Semirefined and not the crude oil should be used, for the latter does not spread over the surface of the water, and the refined is rather too thin and is more expensive. Petroleum does not poison the larvae, but destroys them in a mechanical way; for when it is spread over the surface of the water as a film, it plugs up the minute openings of the respiratory tract of the larvae when they come to the surface for air, which is necessary every minute or so. The oil is afterward disposed of in various ways, and the receptacles after some days become breeding places again.

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[1] Dixon, S. G.: The Duck as a Preventive Against Malaria and Yellow Fever, THE JOURNAL A. M. A., Oct. 3, 1914, p. 1203.

There is no agent which may be used as a substitute for petroleum oil, for it acts quickly and is cheap and not dangerous. The latter is an important consideration, for if poisonous solutions are used, for instance in pools in the country where animals have access, unpleasant results are apt to follow. Besides larvae are hardy little bodies, and not easily affected by poisonous agents. My experiments in this direction showed that larvae will remain alive for over twenty-four hours in a 1:1,500 solution of mercuric chlorid, and a comparatively strong solution of phenol (carbolic acid) and other products which are often advocated for this purpose.

While petroleum oil is a valuable temporary agent in dealing with the inland mosquito, it is worthless in the destruction of the striped legged or coast mosquito, chiefly on account of the great area involved, and must not be considered in connection with this work.

I may add that after long personal experience in the extermination of both the inland and coast mosquitoes, I have yet to know of any method by which this work may be successfully carried out except the destruction of breeding places. Besides, this is in full accord with the modern methods of preserving health; for it is the prevention of mosquitoes rather than their treatment that is called for.

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FULLER'S EARTH; ITS ADSORPTIVE POWER, AND ITS ANTIDOTAL VALUE FOR ALKALOIDS *

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INTRODUCTION

For several decades fuller's earth (Parsons[1]) has been used extensively for the removal of coloring matter from oils. It owes this use to its capacity for adsorbing basic colors from solutions, which resides in the finest particles of the clay. The union between the basic substance and the earth is believed to be physical, as it can be easily broken up by use of proper solvents.

In 1910, John Uri Lloyd[2] of Cincinnati discovered that the addition of fuller's earth to alkaloids greatly diminished or almost abolished their bitter taste and that most alkaloids could be quantitatively removed from solutions by means of it. Further research revealed that this activity resided in the finest particles of the earth, which Lloyd separated by elutriation from the coarser portion and to which the name "Lloyd's reagent" has been applied.

In view of the theoretic interest as well as of the practical possibilities inherent in this property of fuller's earth, this research was undertaken to determine, first, the relation of alkaloids to "Lloyd's reagent" and to various other specimens of fuller's earths; and, secondly, to see to what extent the action of various alkaloids may be modified by combination with these earths. Lloyd, Eli Lilly & Co., and various producers of fuller's earth have kindly supplied liberal quantities of material, by means of which the following data were obtained.

TABLE 1.—ADSORPTIVE VALUE AND ACIDITY OF VARIOUS SPECIMENS OF FULLER'S EARTH *

Specimen	Morphin Sulphate, 0.5% sol.	Quinin Bisulphate, 0.5% sol.	Malachite Green 1%, with 0.25% Morphin	For 100 Gm. Earth Phenolphthalein, c.c. of Tenth Normal Sodium Hydroxid	Congo-red
Colloidal portion of Lester Clay without drying.†	6.5	9	20	77	Purplish.
Lloyd's Reagent, Eli Lilly & Co.	8	10	30	155	Bluish purple.
General Reduction Co., Dry Branch, Ga.	20	30	60	175	Blue.
Olson Fuller's Earth, Benton, Ark.	26	44	70	20	Red with trace of blue.
Specimen F (source unknown)	28	50	75	215	Bluish purple.
Lester Clay Co. (xx F) Jacksonville, Fla.	36	50	100	25	Reddish purple.
Specimen D (source *unknown*)	52	74	105	30	Red with trace of blue.
Midway, Fla., Fuller's Earth	70	80	120	40	Bluish red.
Manatee (E x F) Ellenton, Fla.	80	104	115	15	Bluish red.
Atlantic Refining Co. (xxF) Ellenton, Fla.	110	140	130	5	Red with faint tr. of blue.
Specimen E (source unknown)	200	280	160	5	Red with faint tr. of blue.
Pear's Precipitated....	500	400	600	5	Red with faint tr. of blue.
Kaolin	600	600	1,000	0	Red.

* The figures in the first three columns indicate parts by weight of the respective earths required to remove from solution 1 part of the substance named at the head of the column. The figures in the fourth column indicate c.c. of tenth normal sodium hydroxid needed to neutralize 100 gm. of fuller's earth, phenolphthalein being used as indicator. *The specimens are arranged in order of adsorptive power.* Variations in adsorptive power of different specimens from the same source have been noted.

† Drying would reduce activity somewhat.

THE ALKALOID ADSORBING QUALITY OF VARIOUS SPECIMENS OF FULLER'S EARTH

This was studied by briefly shaking accurately measured quantities of alkaloidal solutions with varying amounts of fuller's earth, filtering and then testing the filtrate for the alkaloid to determine the smallest amount necessary to remove the alkaloid from the solution. The figures given in Tables 1 and 2 show how many parts of fuller's earth had to be used to remove 1 part of alkaloid from solution. There is some difficulty in deciding on the end-point in these determinations, owing to the fact that water dissociates the combination to a slight extent, so that it is almost impossible to get rid of traces of the alkaloids in the filtrate. Therefore the smallest amount of fuller's earth that would remove the alkaloid as thoroughly as a larger amount was the quantity looked for.

In Table 1, the various earths have been arranged in order of their adsorptive power. It must be understood that the figures given in this table are only of relative value. Slight modifications in the technic of the test give quite different results. Nevertheless, when the same technic was applied to each of the different specimens, their relative position in the table was well maintained. It must furthermore be realized that the adsorptive power of fuller's earth from various sources depends, to a certain extent, on the degree and uniformity of fineness of the specimen. Mere sifting raises the value, if a considerable amount of coarse particles be present; so does elutriation. Nevertheless there is a limit to which the adsorptivity of any one specimen may be raised by these means.

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* From the Pharmacologic Laboratory of the College of Medicine of the University of Illinois.

[1] Parsons, Charles L.: Fuller's Earth, Bull. 71, Mineral Technology, Dept. of the Interior, Bureau of Mines, October, 1913.

[2] Lloyd, John Uri: Lloyd's Reagent—Preliminary Announcement, Jour. Am. Pharm. Assn., May, 1914, iii, No. 5, p. 625.

It will be noted that "Lloyd's reagent" is considerably more powerful than any one of the specimens of fuller's earth. It will also be seen that the specimens obtained from Ellenton, Fla., are quite deficient in this power. Pear's precipitated fuller's earth, a very fine white powder, is surprisingly inert. The activity of kaolin is practically nil. In view of the fact that the United States Dispensatory as well as the National Dispensatory quote "fuller's earth" as one of the synonyms of kaolin, it seems of importance to point out that there is a marked difference in the adsorptive power of these substances.

Kaolin as well as fuller's earth is considered to be essentially composed of hydrous aluminum silicate; the latter being merely less pure than the former. That this is the case can be readily seen by comparing the composition of kaolin (Watts[3]) with that of fuller's earth (Vaughan[4]) and of Lloyd's reagent (Waldbott[5]).

	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Alkalies	Water
Kaolin	45.40	37.34	1.92	0.44	0.20	0.52	14.0
Fuller's Earth..	57.26	18.33	1.87	2.58	1.06		18.4
Lloyd's Reagent	55.30	9.82	14.80	1.58			17.41

It is an interesting question, why such great difference in adsorptive power exists among these substances. The following theories present themselves: First, it might be due to a physical difference, namely, the amount of colloidal material present; secondly, it might be due to difference in reaction; thirdly, it might be due to difference in chemical composition.

THE AMOUNT OF COLLOID IN FULLER'S EARTH

Ashley[6] believes that the power of adsorbing certain dyes by clay supplies a measure of the amount of colloid present. He selected malachite green as the best dye known for this purpose, as it is wholly noncolloidal. Colloidal dyes, even if as feebly colloidal as methylene blue, introduce complicating factors that vitiate results, as may be seen by comparing the figures for malachite green with those arrived at with methylene blue: of Specimen F 40 times the amount was required, of Specimen D 60 times, of Specimen E 50 times, of Midway, Fla., fuller's earth 60 times—figures that are very near together in spite of great difference in alkaloid adsorbing power of these various specimens. Ashley agitates the clay with the dye solution for an hour, by means of a small ball mill, permits the clay to settle over night, and determines the amount of malachite green adsorbed by comparison with dilutions of a standard solution of malachite green. He found that half an hour's settling gave results that were too erratic, in view of the slow sedimentation of some specimens of fuller's earth. It must be understood that colored colloidal material in suspension makes the solution appear darker, so that it would seem less color was adsorbed, leading to the judgment that the clay is less colloidal, when it would be actually more colloidal than another clay that settled readily. I believe I have hit on a much less troublesome, more rapid and probably as accurate method of estimating the adsorptive power of fuller's earth by means of malachite green. The addition of a small quantity of an alkaloid, for example, morphin, to a fuller's earth suspension produces immediate deflocculation. On the other hand morphin does not readily salt out the malachite green. I therefore used in the determination of the malachite green figures (Tables 1 and 2) a solution of the following composition:

Malachite green	1.0
Morphin sulphate	2.5
Distilled water to................................	1,000

Filter after prolonged agitation.

The amount of fuller's earth needed to remove a certain quantity of malachite green from this solution, expressed in multiples of that quantity, is represented by the figures in Table 1. It will be noted that these figures run quite closely parallel to the figures indicating alkaloid adsorptive power. Other electrolytes, for example, sodium chlorid, also produce deflocculation of suspended fuller's earth. However, considerably larger quantities of sodium chlorid are needed to produce this result promptly: quantities that are capable of salting out the malachite green, thus interfering with the test.

From Tables 1 and 2 it will be seen that the adsorption of malachite green runs parallel with the adsorption of alkaloids, and is therefore presumably due to the same cause. To use this adsorption as a measure of the amount of colloid present, as is proposed by Ashley, merely rests on the assumption that it is due to colloid. It does not prove that this is the case. Inasmuch as other colloids experimented with, such as colloidal aluminium hydroxid, colloidal ferric hydroxid, colloidal silicic acid, mastic emulsion, do not have the power of adsorbing alkaloids to nearly the same degree as active fuller's earth, it is reasonable to assume that we have here a case of specific adsorption; and that, while no doubt the colloidal state is necessary for this effect, it is not the essential cause of it.

THE "ACIDITY" OF FULLER'S EARTH

To determine whether the acid reaction generally displayed by fuller's earth is the cause of the effects observed, the degree of "acidity," or rather the power of the earth to adsorb bases, was determined for each specimen by titration of 2 gm. of the earth, suspended in 100 c.c. of distilled water, with tenth normal sodium hydroxid, using phenolphthalein as an indicator. A priori one might expect that the power of adsorbing alkali would be proportionate to, or at least run parallel with, the power of adsorbing alkaloids. This, however, is not the case, as can be seen by a glance at Table 1. Nevertheless, specimens devoid or practically devoid of acidity, like kaolin or Pear's precipitated fuller's earth, fail to adsorb alkaloids and those of lowest acidity are lowest in the list of alkaloidal adsorbents. Hence the presence of "acidity" is necessary to enable fuller's earth to adsorb alkaloids; though its degree is by no means a measure of the degree of this power. It therefore appears there are at least two factors involved in the adsorption phenomenon under consideration: the one the "acidity," the other the colloidal state. Whether the reason for the comparatively high adsorptive power of "Olson" and "Lester" fuller's earth, in spite of their rather low "acidity," is due to a relatively higher content of colloid than is present in more acid earths of lower activity, or whether there are two different "acidities" involved, one of importance in adsorption of alkaloids and the other not, remains to be settled. Nor have I the data at hand, at present, to discuss with any degree of profit the other theory previously advanced. On work on these questions I hope to report in the near future.

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[3] Watts, A. S.: Mining and Treatment of Feldspar and Kaolin, Bull. 53, Dept. of the Interior, Bureau of Mines, 1913, p. 37.

[4] Vaughan, T. W.: Fuller's Earth Deposits of Florida and Georgia, Bull. 213, Dept. of the Interior, U. S. Geo. Survey, 1902, p. 393.

[5] Waldbott, Sigmund: Precipitation of Alkaloids by Lloyd's Reagent, Jour. Am. Chem. Soc., June, 1913, p. 837.

[6] Ashley, Harrison Everett: The Colloidal Matter of Clay and Its Measurement, Bull. 388, U. S. Geol. Survey, 1909.

TABLE 2.—PROPORTION OF FULLER'S EARTHS NEEDED TO REMOVE 1 PART OF ALKALOIDAL SALT FROM SOLUTION

Alkaloidal Salt	Lloyd's Reagent	General Reduction Co.	Olson Fuller's Earth	Lester Fuller's Earth
Morphin sulphate..........	8	20	26	36
Quinin bisulphate..........	10	30	44	50
Nicotin hydrochlorid.......	20	50	100	110
Cocain hydrochlorid........	20	75	95	150
Aconitin nitrate............	50	70	100	120
Strychnin sulphate.........	40	110	120	200
Colchicin hydrochlorid.....	130	160	200	
Malachite green............	30	65	70	100

The addition of Congo-red to fuller's earths enables one to determine roughly, but quickly, the presence and the degree of "acidity." It will be seen (Table 1) that all the earths that gave a blue or purple color with Congo-red were found active, while with the inactive kaolin there was no change; the others produced intermediate tints.

THE ADSORPTION OF VARIOUS ALKALOIDS BY FULLER'S EARTH

It will be seen from Table 2 that the various alkaloids differ in their relation to fuller's earth. For instance, a smaller quantity of an earth is needed to remove a morphin than a quinin salt; and less fuller's earth is needed to remove quinin bisulphate than strychnin sulphate. Colchicin needs the largest amount. As will presently be seen, these relations are significant in connection with the antidotal value of fuller's earth for these different alkaloids.

THE ACTIVITY OF ALKALOIDAL FULLER'S EARTH COMPOUNDS

The alkaloidal fuller's earth compounds resist dilute acid; but are decomposed by alkalies, even as dilute as fiftieth normal sodium carbonate, which is approximately the alkalinity of the intestinal juice. When fuller's earth compounds of various alkaloids are treated with fiftieth normal sodium carbonate solution and the solution is acidified, it yields precipitates with Mayer's reagent, apparently in proportion to the solubility of the free alkaloid in water: the nicotin precipitate is much more copious than that obtained with cocain; and the latter more abundant than the aconitin or the strychnin precipitate. Emetin yields only a trace. The concentration of the morphin solution obtained under these circumstances is below the threshold of distinct precipitation by Mayer's reagent, as is also a saturated solution of morphin in water; it yields, however, a copious precipitate with phosphomolybdic acid. Colchicin does not, of course, precipitate with Mayer's reagent, but does with tannic acid.

In view of this dissociability of the alkaloidal fuller's earth compounds by very dilute alkali, it is easy to understand why they become active in the animal body in spite of the fact, as Gordin and Kaplan[7] have shown, that the digestive ferments have no disrupting effect on these compounds. Being insoluble in acid liquids, even in the presence of pepsin, they pass through the stomach without acting on this viscus and without being acted on. On arriving in the intestine, they are gradually dissociated into their constituents, yielding the alkaloid to absorption. This explains why the general action of alkaloids, administered in this combination, is markedly delayed; and why a larger dose is needed to obtain the same effect.

TABLE 3.—EFFECT ON RABBITS OF SMALL FATAL DOSE OF STRYCHNIN SULPHATE, 5 MG. PER KILOGRAM GIVEN ORALLY, WITH AND WITHOUT FULLER'S EARTH AND ACID

Rabbit		Dose			Effect	
No.	Weight Gm.	Strych. Mg.	Fuller's Earth	Acid	Symptoms	Result
A 1	624	0.0031	0	0	Convulsions in 15 min.	Death in 35 min.
A 2	1,190	0.006	0	0	Convulsions in 20 min.	Death in 25 min.
A 3	800	0.004	0	0	Convulsions in 15 min.	Death in 18 min.
A 4	2,000	0.010	0	0	0	Recovery.
A 5	680	0.0034	0	0	Convulsions in 72 min.	Recovery.
A 6	680	0.0034	0	0	Convulsions in 47 min.	Recovery.
B 1	794	0.004	0.400	0	Convulsions in 47 min.	Death in 50 min.
C 1	1,021	0.005	1.500	1.500 tartaric	0	Recovery.
C 3	1,190	0.006	0.600	0.600 tartaric	0	Recovery.
C 4	794	0.008	0.800	0.800 tartaric	0	Death in 20 hrs.
C1 1	680	0.0034	1.020*	1.020 tartaric*	0	Recovery.
C1 2	737	0.0037	0.370*	0.370 tartaric*	Convulsions in 45 min.	Death in 49 min.
D 1	740	0.0037	1.110	2.220 NaH_2PO_4	0	Recovery.
D 2	680	0.0034	0.340	1.020 NaH_2PO_4	0	Recovery.
D 3	737	0.0037	0.370	0.740 NaH_2PO_4	0	Recovery.
D 4	624	0.0031	0.310	0.310 NaH_2PO_4	0	Recovery.
D 5	2,265	0.0115	1.150	1.150 NaH_2PO_4	0	Recovery.
D1 1	740	0.0037	1.110*	1.110 NaH_2PO_4*	0	Recovery.
D1 2	1,070	0.0054	1.600*	1.600 NaH_2PO_4*	0	Recovery.
D1 3	1,640	0.0082	1.640*	1.640 NaH_2PO_4*	0	Recovery.
D1 4	500	0.0025	0.750*	0.750 NaH_2PO_4*	0	Recovery.
D1 5	570	0.0028	0.840*	0.840 NaH_2PO_4*	0	Recovery.

* Five minutes later.

TABLE 4.—EFFECT ON RABBITS OF LARGE FATAL DOSE OF STRYCHNIN SULPHATE, 10 MG. PER KILOGRAM GIVEN ORALLY, WITH AND WITHOUT FULLER'S EARTH AND ACID

Rabbit		Dose			Effect	
No.	Weight Gm.	Strych. Mg.	Fuller's Earth	Acid	Symptoms	Result
A 1	2,250	0.0225	0	0	Convulsions in 17 min.	Death in 19 min.
B 1	2,500	0.025	7.50	0	?	Death in 23 hrs.
C 1	624	0.00624	1.25	1.25 tartaric	0	Recovery.
D 1	2,320	0.0232	2.32	2.32 NaH_2PO_4	0	Recovery.
D 2	570	0.0057	1.14	1.14 NaH_2PO_4	0	Recovery.
D1 1	1,870	0.0187	5.60*	5.60 NaH_2PO_4*	Convulsions in 15 min.	Death in 17 min.
D1 2	1,870	0.0187	5.60*	5.60 NaH_2PO_4*	Convulsions in 15 min.	Death in 17 min.

* Five minutes later.

This modification of the action of alkaloids is of toxicologic, of pharmacodynamic, and of therapeutic interest. The diminution of taste, for instance, obtained in this manner has made it possible to produce perfectly pleasant sweet tablets of strychnin (Fantus[8]) for administration to children. The absence of effect on the stomach might be of value in connection with some of the alkaloids. Though, in case of ipecac, the removal of the emetic action by means of fuller's earth also seems to destroy action on certain infusoria, as I have found in as yet unpublished experiments. The delayed absorption might increase the effect on the intestine and its contents; for example, the quinin combination might exhibit amebicidal action in the intestine. The delayed absorption of cocain may make the cocain combination of value as an antipruritic in weeping skin disease. Work on some of these questions is being carried on at present.

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[7] Gordin and Kaplan: Jour. Am. Pharm. Assn., December, 1914, iii, 1656.

[8] Fantus, Bernard: Tabellae Dulces, Sweet Tablets for Children's Medication, Jour. Am. Pharm. Assn., May, 1914, p. 656.

THE NAMING OF THE ALKALOIDAL FULLER'S EARTH COMPOUNDS

Inasmuch as some of these alkaloidal fuller's earth compounds are likely to prove of therapeutic value, it might be well to discuss the terms that have been applied to them. Lloyd named these "alcresta" alkaloids. It is under this title that Eli Lilly & Co. propose to place them on the market. The name is unfortunately not descriptive of the nature of the compound.

McGuigan[9] has applied the name "colloidal" strychnin to the strychnin compound with fuller's earth; a name I believe to be erroneous, as the moment the combination between the colloid and the alkaloid occurs, the colloidal state is destroyed and a coarse suspension results, as may be shown by the readiness with which morphin produces deflocculation of a fuller's earth sol or gel. It appears to me that the best name to apply to the strychnin compound would be "strychninated fuller's earth"; to the morphin compound "morphinated fuller's earth"; to the cocain compound "cocainated fuller's earth," etc.; terms analogous to "chlorinated lime" and "sulphurated potash."

Lloyd at first hoped that his reagent would prove a universal antidote for alkaloids and he describes it as one of the bitterest disappointments of his life when it was shown by Dr. Felter, in 1911, that the combination of Lloyd's reagent with strychnin was still capable of killing a dog in convulsions. Lloyd suggested to me that the addition of tartaric acid or of stearic acid to his reagent might raise its antidotal value. It will presently be seen that this is indeed the case with tartaric acid. Experiments with the stearic acid combination proved negative.

The experiments recorded below were undertaken primarily to study the toxic action of alkaloidated fuller's earth. It soon became apparent, however, that fuller's earth did possess antidotal value against certain alkaloids, while it had little value against others, as will be shown by the following data.

TABLE 5.—EFFECT ON DOGS OF FATAL DOSE OF STRYCHNIN SULPHATE, 2 MG. PER KILOGRAM, GIVEN ORALLY, WITH AND WITHOUT FULLER'S EARTH AND ACID

Dog		Previous Adm. of Morphin, 5 Mg. per Kg.	Dose				Effect	
No.	Weight, Gm.		Strych. Sulph., 2 Mg. per Kg.	Accomp. (+) or Followed	Fuller's Earth	Acid	Symptoms	Result
A 1	8,500	0	0.017	....	0	0	Convulsions in 12 minutes	Death in 26 minutes.
A 2	9,500	0	0.019	....	0	0	Convulsions in 10 minutes	Death in 11 minutes.
A 3	7,000	0.035	0.014	....	0	0	Convulsions in 100 minutes	Death in 135 minutes.
A 4	7,300	0.037	0.0146	....	0	0	Convulsions in 25 minutes	Death in 40 minutes.
A 5	14,000	0.070	0.028	....	0	0	?	Death in 24 hours.
A 6	8,150	0.040	0.014	....	0	0	Convulsions in 7 hours....	Death in 20 hours.
B 1	8,000	0	0.016	+	4.80	0	Convulsions in 30 minutes lasting for 6:30 hours.	Recovery.
C 1	19,500	0	0.039	+	12.00	12.0 Tart.	Emesis + Conv. 0..........	Recovery.
C 2	9,000	0	0.018	+	5.4	5.4 Tart.	Emesis (?) Conv. 0........	Recovery.
C 3	5,000	0	0.010	+	3.0	2.0 Tart.	Convulsions in 2:30 hours	Death in 2:45.
C 4	9,000	0	0.018	+	5.4	1.8 Tart.	Convulsions in 1:30 hours	Recovery.
C1 1	8,500	0	0.019	5 min. later	5.7	5.7 Tart.	Convulsions in 14 minutes	Recovery.
C1 2	12,500	0	0.025	5 min. later	7.5	7.5 Tart.	Emesis in 20 minutes.......	Recovery.
C1 3	6,500	0	0.013	5 min. later	3.9	3.9 Tart.	?	Death in 20 hours.
C1 4	16,000	0	0.032	5 min. later	9.6	9.6 Tart.	0	Recovery.
C1 5	7,500	0	0 015	10 min. later	4.5	4.5 Tart.	Convulsions in 10 minutes	Death in 20 minutes.
D 1	15,500	0	0.031	+	9.3	18.6 NaH_2PO_4	Emesis, slight...............	Recovery.
D 2	14,500	0	0.029	+	8.7	17.4 NaH_2PO_4	Defecation	Recovery.
D 3	12,000	0	0.024	+	7.2	14.4 NaH_2PO_4	Emesis	Recovery.
D 4	8,500	0	0.019	+	5.7	5.7 NaH_2PO_4	Convulsions in 78 minutes	Death in 130 minutes.
D1 1	7,000	0	0.014	5 min. later	4.2	8.4 NaH_2PO_4	Emesis, convulsions (?)....	Death in 20 hours.
D1 2	15,500	0	0.031	5 min. later	9.3	18.6 NaH_2PO_4	Convulsions in 4 hours....	Death in 20 hours.
D1 3	4,000	0.020	0.008	5 min. later	2.4	2.4 NaH_2PO_4	0	Recovery.
D1 4	8,500	0.043	0.017	10 min. later	5.1	5.1 NaH_2PO_4	Convulsions, slight	Recovery.
D1 5	6,350	0.0325	0.0127	10 min. later	3.8	3.8 NaH_2PO_4	0	Recovery.
D1 6	6,900	0.035	0.014	15 min. later	4.2	4.2 NaH_2PO_4	0	Recovery.
E 1	4,125	0	0.00825	+	2.475	5.0 Potas.Bitart.	Convulsions (?)	Death in 5 hours.

ANTIDOTAL VALUE IN STRYCHNIN POISONING

The antidotal value of fuller's earth in strychnin poisoning in the rabbit may be estimated from Tables 3 and 4. It will be seen in Table 3 that 5 mg. per kilogram is invariably convulsive and frequently fatal for small rabbits; that, on the other hand, a large rabbit (A 4) showed no effect from such a dose. Eliminating, therefore, the only other large rabbit in this series (D 5) from consideration, we find that fuller's earth alone is not antidotal to strychnin. The addition of tartaric acid or of sodium dihydrogen phosphate to the fuller's earth renders it, however, capable of preventing convulsions and of saving life in small rabbits, even if administered five minutes after the poison has been given. The sodium dihydrogen phosphate showed itself superior to the tartaric acid by having this effect invariably, while with the tartaric acid combination convulsions and deaths have occurred. The dose of 10 mg. per kilogram (Table 4) is invariably fatal; and yet the addition of tartaric acid or of sodium dihydrogen phosphate to fuller's earth has enabled it to prevent effects, if administered at the same time; but not, if administered five minutes later. Against 15 mg. per kilogram, fuller's earth with sodium dihydrogen phosphate has been useless so far as saving life of rabbits is concerned; but it, no doubt, postponed the effects to a considerable degree, as will be seen from the following observations:

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[9] McGuigan, Hugh: A Colloidal Compound of Strychnin and Its Pharmacology, The Journal A. M. A., Nov. 28, 1914, p. 1933.

Rabbit D 10, weighing 907 gm. was given 0.015 gm. strychnin with 4.50 gm. each of fuller's earth and of sodium dihydrogen phosphate. Death occurred in four hours and thirty minutes.

Rabbit D 11, weighing 2,660 gm. was given 0.040 gm. of strychnin with 13.3 gm. each of fuller's earth and sodium dihydrogen phosphate. Death occurred in thirty-two hours.

Table 5 shows that a dose of 2 mg. per kilogram is invariably fatal to dogs. The addition of fuller's earth saved life, but did not prevent convulsions. The addition of tartaric acid and of sodium dihydrogen phosphate frequently prevented convulsions and generally saved life. However, emesis was so frequently produced as to vitiate the results. Therefore morphin was given about one hour before the administration of the poison. This preliminary administration of morphin, of course, produced vomiting and often defecation within the hour, followed by a depression of the vomiting center, so that the doses were now regularly retained. Experiments A 3 to A 6 (Table 5) show that the morphin does not save the life of the animal, though it delays results. Experiments D 3 to D 6 show that fuller's earth and sodium dihydrogen phosphate are capable of saving life, even though no emesis takes place. The fact that it was possible to save the life of morphinized dogs, even if the antidote was given five, ten and fifteen minutes after the poison, while the antidote failed to produce such result without the morphin, is most interesting and requires further study. Possibly it is due to delayed evacuation of the stomach.

TABLE 6.—EFFECT ON RABBITS OF FATAL DOSES OF MORPHIN GIVEN ORALLY WITH AND WITHOUT FULLER'S EARTH

Rabbit		Dose			Effects	
No.	Weight, Gm.	Morphin Sulph. per Kg.	Accom. (+) or followed	Fuller's Earth	Symptoms	Result
A 1	850	1 mg.	....	0	Depr. Conv. in 2 hrs.	Death in 3 hrs.
B 1	794	1 mg.	+	20.00	Some depression......	Recovery.
B 2	1,248	1.6 mg.	+	50.00	Some depression......	Recovery.
B 3	1,134	2 mg.	+	56.25	Some depression......	Recovery.
B1 1	510	1 mg.	10 min. later	12.50	Some depression......	Recovery.
B1 2	624	1 mg.	15 min. later	15.75	Some depression......	Recovery.
B1 3	1,134	1 mg.	20 min. later	30.00	Depr. Conv. in 30 min.	Death in 2 hrs.
B1 4	740	1 mg.	20 min. later	18.50	Depr. Conv. in 2 hrs...	Death in 3 hrs.

A dose as large as 4 mg. per kilogram makes demands on the antidote that it is not able to meet, as will be seen from the following experiments:

Dog C 6, weighing 9 kg., was given, at 9:15 a. m., 0.036 gm. strychnin with 5.4 gm. each of fuller's earth and tartaric acid. It was found dead next morning, no convulsions having been observed.

Dog C 7, weighing 13.5 kg. was given at 9:30 a. m. 0.108 gm. strychnin with 9.1 gm. each of fuller's earth and of tartaric acid. There was slight emesis at 11 a. m. The animal was found dead next morning, no convulsions having been observed.

ANTIDOTAL VALUE IN MORPHIN POISONING

Table 6 shows that the antidotal value of fuller's earth is much greater for morphin than it is for strychnin. This is probably due to the fact, shown in Tables 1 and 2, that morphin is much more readily removed from solutions by fuller's earth than are any of the other alkaloids, as well as to the slight solubility of the alkaloid morphin and the large dose needed to produce death in these animals. It will be noted that the mere addition of fuller's earth saved rabbits from as much as twice the fatal dose of morphin, and that fuller's earth was still capable of saving life, if given ten and fifteen minutes later; but not if given twenty minutes later. The administration, at intervals, of fuller's earth in morphin poisoning in human beings, even after hypodermic administration of the poison or evacuation of the stomach, appears indicated; as the morphin excreted into the stomach would be adsorbed by the clay and its reabsorption prevented or at least delayed.

TABLE 7.—EFFECT ON DOGS OF FATAL DOSES OF COCAIN WITH AND WITHOUT MORPHIN AND FULLER'S EARTH

Dog		1 Hour Prev. Hypo. of Morphin, 5 Mg. per Kg.	Dose		Effects	
No.	Weight, Gm.		Cocain, Gm.	Fuller's Earth	Symptoms	Result
A 1	7,250	0	0.1 per kg.	0	Convulsions in 25 min.	Death in 90 min.
A 2	3,000	0	0.1 per kg.	0	Convulsions in 15 min.	Death in 20 hrs.
A 3	3,800	0	0.2 per kg.	0	Convulsions in 7 min.	Death in 16 min.
A 4	7,500	0.040	0.1 per kg.	0	Whining occ.	Recovery.
A 5	5,946	0.025	0.1 per kg.	0	Depr., later excit.	Recovery.
A 6	6,850	0.035	0.2 per kg.	0	Convulsions in 220 min.	Death in 260 min.
A 7	7,140	0.035	0.2 per kg.	0	Convulsions in 15 min.	Death in 30 min.
A 8	4,700	0.030	0.2 per kg.	0	Depression..............	Death in 20 hrs.
B 1	6,000	0	0.1 per kg.	60.0	Emesis in 85 min.	Recovery.
B 2	12,000	0.600	0.1 per kg.	120.0	0	Recovery.
B 3	6,800	0.035	0.2 per kg.	136.0	0	Recovery.
B 4	4,800	0.025	0.2 per kg.	96.0	0	Recovery.
B 5	3,740	0.020	0.2 per kg.	76.0	0	Recovery.

ANTIDOTAL VALUE IN COCAIN POISONING

In view of the local anesthetic quality of cocain, it is of interest to note that the dog B 1 (Table 7), that received it together with fuller's earth, vomited. Evidently the compound produced by fuller's earth with cocain is not decomposed in the stomach, which is entirely in accord with the general tendency of the alkaloidal fuller's earth compounds not to give up the alkaloid to an acid solution. This made it necessary again to use hypodermic injections of morphin, one hour previously, to prevent the emesis. However, inasmuch as morphin is an antagonist to cocain, as will be seen by comparing the result in A 1 and A 2 with A 4 and A 5, it was necessary to use a large fatal dose of cocain (0.2 gm. per kg.), in order to have a fatal dose in the presence of morphin. The antidotal value of fuller's earth under these circumstances is demonstrated by the uniformly fatal results in experiments A 6, A 7 and A 8, as compared with the uniformly negative results in Experiments B 3, B 4 and B 5. Evidently fuller's earth is an antidote to cocain, and it does not need acid to produce this effect, at least in the presence of morphin, which probably enhances the antidotal effect of fuller's earth by delaying the emptying of the stomach.

ANTIDOTAL VALUE IN NICOTIN POISONING

Rabbits are killed within twenty minutes by 0.20 gm. nicotin per kilogram, as will be seen from Table 8. The addition of fuller's earth to such a dose is followed by recovery. A dose of 0.40 gm. per kilogram is fatal even when fuller's earth and sodium dihydrogen phosphate are added. If the antidote is given five minutes after the poison was administered, it is unable to save life. Evidently nicotin acts too rapidly to admit of any interval between the giving of the poison and of the antidote.

TABLE 8.—EFFECT ON RABBITS OF FATAL DOSES OF NICOTIN, GIVEN ORALLY WITH AND WITHOUT FULLER'S EARTH AND ACID

Rabbit		Dose				Effects	
No.	Weight, Gm.	Nicotin per Kg.	Accom. (+) or Foll.	Fuller's Earth	Acid	Symptoms	Result
A 1	1,500	0.10	......	0	0	0	Recovery.
A 2	964	0.20	......	0	0	Convulsions in 15 min.	Death in 20 min.
A 3	900	0.20	......	0	0	Convulsions in 12 min.	Death in 20 min.
A 4	1,416	0.20	......	0	0	Convulsions in 10 min.	Death in 13 min.
B 1	740	0.20	+	18.0	0	0	Recovery.
B 2	800	0.20	+	16.0	0	Depression in 30 min.	Recovery in 60 min.
B 3	570	0.40	+	23.0	0	Depression...	Death in 120 min.
B1 1	740	0.20	5 min.	18.0	0	Convulsions in 11 min.	Death in 30 min.
D 1	900	0.20	+	10.0	5.0 NaH_2PO_4	0	Recovery.
D 2	680	0.40	+	13.6	6.8 NaH_2PO_4	?	Death within 20 hrs.

ANTIDOTAL VALUE IN IPECAC POISONING

Emetic Dose.—If two dogs of similar size and with empty stomachs are chosen, and one of these is given, by means of the stomach tube, 0.3 c.c. per kilogram of fluidextract of ipecac mixed with ten times the volume of water, while the other receives the same dose with the addition of 3 gm. of active fuller's earth per cubic centimeter of fluidextract used, the first dog will vomit profusely and many times—usually not until after half an hour, but within one hour—and soon afterward may have bowel evacuations, which sometimes become bloody. The other dog will show no effects whatever excepting perhaps, occasionally, a looseness of the bowels on the next day.

Fatal Dose.—A dose of 1.5 c.c. of fluidextract of ipecac per kilogram has been found uniformly fatal in dogs, as will be seen from the following experiments:

Dog A, weighing 15.5 kg. was given 23.25 c.c. of fluidextract of ipecac, diluted with 232.5 c.c. of water, at 9:42 a. m. Formed bowel movement occurred at 11:25; vomiting at 12, and again at 12:15; semiliquid bowel movement at 12:30. Several other attacks of emesis occurred during the afternoon, the animal refusing food, but drinking water freely. The next day it was found that the animal had bloody bowel movements; and on this day it died at 10 a. m. Necropsy showed hemorrhagic gastro-enteritis. The urine obtained from the bladder contained albumin and a few red blood corpuscles, but no casts.

Similar results were obtained in three other dogs. A different result was obtained in Dog E. This dog, weighing 7.25 kg. was given 10 c.c. of fluidextract of ipecac diluted with 100 c.c. of water. Within half an hour, the dog showed marked depression, salivation, and had a fluid defecation, but did not vomit. The animal died within five hours after the administration of the poison, without having had emesis or bloody purging. On post-mortem examination, performed twenty hours later, the gastro-intestinal tract was found pale and without gross evidence of inflammation. Death had evidently occurred too soon for inflammation to have developed.

Entirely different is the result when the fatal dose of fluidextract of ipecac is mixed with fuller's earth, 3 gm. per cubic centimeter, as may be seen from the protocol of experiment on Dog J. This animal, weighing 9.5 kg., was given 14.25 c.c. of fluidextract of ipecac diluted with 142.5 c.c. of water, to which 42.75 gm. of fuller's earth were added. There was no effect whatever, excepting that the animal refused food and drink for several hours afterward. During the succeeding days the animal was perfectly normal. Its bowel movements were hard and clay-colored lumps. Its urine was free from albumin. The animal was chloroformed five days afterward. Its gastro-intestinal tract was found normal. Identical results were obtained in three other dogs. On the other hand, one dog whose stomach was full of food vomited shortly after administration of the dose, probably from overdistention of the stomach. Two other dogs recovered from twice the surely fatal dose of fluidextract of ipecac, namely, 3 c.c. of the fluidextract per kilogram, diluted with ten times the amount of water to which a proportionate amount of fuller's earth had been added. Both dogs had a single emesis soon after injection, probably from overdistention of the stomach, for the bulk of the dose is considerable; but developed no further results of any importance and recovered completely, as may be seen from the protocol of one of these experiments:

A dog, weighing a little less than 12 kg., was given 35 c.c. of fluidextract of ipecac with 350 c.c. of water and 14 gm. of Lloyd's reagent. The dose was administered at 9:50 a. m. Shortly afterward, profuse salivation appeared and lasted for over an hour. Twenty minutes after the injection a single emesis occurred, the vomit consisting of thin watery fluid with a small amount (3 gm.) of the injected preparation. There was no further emesis. A fine muscular tremor appeared at 12 m., and lasted about an hour. Complete recovery took place.

Evidently fuller's earth is a powerful antidote to ipecac. To test its practical value in case of poisoning, the antidote was administered at varying intervals of time after the introduction of the poison with results that might best be shown by tabulation.

It will be noted (Table 9) that, when the fuller's earth was given mixed with the poison, no damage occurs.

When the fuller's earth was given ten minutes afterward, the animal was seriously affected by the poison, but recovered. Fuller's earth was incapable of saving animals when administered twenty minutes or longer after the poison; but it rendered the picture of intoxication milder and postponed death in inverse proportion to the length of time that elapsed between the administration of the poison and of the antidote.

ANTIDOTAL VALUE IN ACONITIN POISONING

Table 10 shows that fuller's earth has some antidotal value in this condition also. It is difficult, however, to arrive at a definite judgment as to the degree of its value. It produces emesis even after the previous administration of morphin. That the emesis does not save life, will be seen from the fact that all the dogs that died vomited. They generally vomited more profusely than the dogs that recovered. Therefore emesis was probably not a factor in those cases in which recovery took place. It will be noted that in practically all the animals that did recover rather marked symptoms occurred: emesis generally the next day, and in several of them bloody defecation, which in one case lasted for several days. The death of the animal D 5 may not have been due to the poison, as the animal was sick before it was subjected to the experiment, as was discovered subsequently. In another series of animals, in which the alkaloid aconitin (crystallized) was used—not the salt—death occurred in every case, even when fuller's earth or fuller's earth with acid were added, the fatal result being postponed for from twenty-four to forty-eight hours. Evidently the free alkaloid does not combine with fuller's earth as readily as does the salt.

TABLE 9.—RESULTS OF ADMINISTRATION OF FATAL DOSE (1.5 C.C. PER KG.) OF FLUIDEXTRACT OF IPECAC, WITH AND WITHOUT FULLER'S EARTH AT VARYING INTERVALS

Dog	Administration	Emesis		Defecation	Result	Post-Mortem Examination
		Onset, Min.	Times			
A	Ipecac............	138	5	Bloody.....	Death in 24 hours.	Violent gastro-enteritis.
E	Ipecac............	...	0	Liquid not bloody.	Death in 5 hours.	Gastro-intestinal tract pale.
F	Ipecac and fuller's earth 40 minutes later.	...	0	Liquid not bloody.	Death within 20 hours.	Gastro-enteritis.
G	Ipecac and fuller's earth 30 minutes later.	55	6	Bloody.....	Death in 25 hours.	Gastro-enteritis.
H	Ipecac and fuller's earth 20 minutes later.	70	1	Bloody.....	Death within 44 hours.	Less severe gastro-enteritis.
I	Ipecac and fuller's earth 10 minutes later.	22	13	Bloody.....	Aborted 5 fetuses. Lived for 5 days.	Gastro-intestinal tract showed evidences of past enterocolitis.
J	Ipecac and fuller's earth mixed.	...	0	Hard, clay-colored.	Recovery....	Gastro-intestinal tract normal.

TABLE 10.—EFFECT ON DOGS OF FATAL DOSE OF ACONITIN NITRATE, CRYSTALLIZED (MERCK'S), (4 MG. PER KILOGRAM), GIVEN ORALLY, WITH AND WITHOUT FULLER'S EARTH AND ACID

Dog		Morphin Sulph., 5 mg. per kg. Hypo. 1 Hour Prev. Gm.	Dose			Effects	
No.	Weight, Gm.		Aconitin	Fuller's Earth	NaH_2PO_4	Symptoms	Result
A 1	6,350	0.032	0.0254	0	0	Profuse emesis in 5 min.	Death in 50 min.
A 2	5,096	0.025	0.0204	0	0	Conv., emesis in 4 hours.	Death in 5 hrs.
B 1	8,600	0.043	0.0344	17.20	.....	0	Recovery.
B 2	10.800	0.055	0.0432	21.40	.....	Emesis next day	Recovery.
B 3	4,760	0.025	0.0190	7.60	.....	Emesis (slight) in 6 hours.	Death in 24 hrs.
D 1	9,500	0.048	0.0380	19.00	19.00	Emesis next day	Recovery.
D 2	9,060	0.045	0.0362	18.10	15.10	Emesis next day. Bloody defecation.	Recovery.
D 3	8,600	0.043	0.0344	13.76	13.76	Emesis, clear in 2:30 hours.	Recovery.
D 4	6,570	0.033	0.0263	13.14	13.14	Bloody defecation next day.	Recovery.
D 5	7,250	0.036	0.0290	14.50	14.50	Emesis in 1:30 hours.	Death in 44 hrs.

TABLE 11.—EFFECT ON DOGS OF FATAL DOSES OF COLCHICIN (2 MG. PER KILOGRAM), *GIVEN ORALLY, WITH AND WITHOUT* FULLER'S EARTH AND ACID

Dog		Dose				Effects	
No.	Weight.	Preliminary Morphin, 0.005 per Kg.	*Colchicin*	*Fuller's* Earth	*Acid*	Symptoms	Results
A 1	19,500	0	0.039	0	0	Vomiting in 1:30 hours. Bloody defec. in 4:30 hours.	Death with violent gastritis and colitis within 20 hrs.
A 2	7,700	0.0375	0.0155	0	0	Vomiting and bloody defec. next day.	Death with violent gastritis and colitis in 30 hours.
D 1	9,300	0.050	0.0186	5.60	5.60 NaH_2PO_4	Bloody defec. next day.	Death with less severe colitis in 68 hours.

ANTIDOTAL VALUE IN COLCHICIN POISONING

The antidotal value of fuller's earth against colchicin poisoning is, no doubt, very slight, even though the number of experiments on this point, as shown by Table 10, may be insufficient. With the comparative indifference, however, of colchicin toward fuller's earth, as shown in Table 2, a different result could hardly be expected.

PERSONAL EXPERIMENTS WITH METHYLENE BLUE AND FULLER'S EARTH

To put the question to an approximate test whether fuller's earth would be likely to act in human beings as it does in the lower animals, I and one of my colleagues took doses of methylene blue with and without fuller's earth with the following results:

When a dose of 0.010 gm. of methylene blue is taken a dark green color appears in the urine within a short time and disappears within twenty-four hours. If 1.0 gm. of fuller's earth is added to 0.010 gm. of methylene blue in solution, the urine acquires a faint greenish tint for twenty-four hours; the difference between the two specimens of urine being striking.

The results of larger doses might probably best be presented as in Table 12.

It will be noted that fuller's earth alone postponed the appearance of the discoloration, lessened the duration of intense discoloration, but not the duration of slight discoloration. The addition of a small amount of sodium dihydrogen phosphate did not increase very greatly the effect of fuller's earth. The addition of a larger dose that acted on the bowel within an hour and thirty minutes markedly lessened the period and amount of discoloration. It seems safe to conclude that *fuller's earth, especially when combined with a laxative dose of sodium dihydrogen phospate, is capable of greatly lessening in the human the absorption of substances that are readily adsorbed by fuller's earth.*

CONCLUSIONS

1. Alkaloidal fuller's earth compounds do not act on the stomach; but are gradually dissociated in the intestine, producing a delayed and milder general action.

2. Fuller's earth has antidotal value in morphin, cocain, nicotin, and ipecac poisoning. It has less value in strychnin and in aconitin poisoning, though even in these conditions it is capable of saving life, when combined with sodium dihydrogen phosphate. In colchicin poisoning it is of little value.

3. The power of adsorbing alkaloids is strongly developed in some fuller's earths and very feeble in others. The adsorptive value of commercial fuller's earths should be stated by the dealers; and pharmacists should demand specimens of high activity. Lloyd's reagent possesses this power to the highest degree.

4. Fuller's earth is not synonymous with kaolin, as the United States Dispensatory and the National Dispensatory would lead one to infer. It is a substance with markedly different properties.

TABLE 12.—RESULTS OF DOSES OF METHYLENE BLUE WITH AND WITHOUT FULLER'S EARTH AND SODIUM DIHYDROGEN PHOSPHATE

Experiment	Dose	Effect
1	0.050 gm. methylene blue	Urine green in 1 hr. 25 min., lasting for 2½ days.
2	0.050 gm. methylene blue 2.500 gm. fuller's earth..	Urine green in 9 hrs., lasting for 24 hrs. Traces of discoloration occasionally for 2 days longer.
3	0.050 gm. methylene blue 2.500 gm. fuller's earth.. 2.500 gm. NaH_2PO_4......	Urine green in 10 hrs. 30 min., lasting for 17 hrs. Traces of discoloration occasionally for 2 days longer.
4	0.050 gm. methylene blue 2.500 gm. fuller's earth.. 5.000 gm. NaH_2PO_4......	Bluish brown liquid defecation in 1 hr. 30 min. Urine light green in 10 hrs. Urine green in 14 hrs., lasting for 7 hrs. Traces of discoloration occasionally for 12 hrs. longer.

CHRONIC APPENDICITIS, PYLOROSPASM AND DUODENAL ULCER

A PRELIMINARY NOTE *

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Two years ago I called attention to the fact that in chronic appendicitis, though unsuspected, a continuous firm pressure with the ends of the first three fingers over McBurney's point frequently induced distress or pain in the epigastrium.[1] Recently, while examining a case of chronic appendicitis with the Roentgen fluoroscope, I was surprised to find that I was able to induce a pylorospasm by this pressure over the appendix. The pressure also produced the reflex pain in the epigastrium of which the patient complained. I am inclined to believe that this pain was due to spasm of the pylorus.

I wish to report the following case:

Miss L., aged 23, American, with negative family history, had had mastoiditis on the left side two years before. She had stomach trouble for three or four years, with an acute attack, sixteen months before, of epigastric pain and nausea, not associated with jaundice or vomiting. For the past eight months she had complained of a pressing sensation in the upper abdomen occurring about thirty minutes after eating. This sensation was accompanied by eructations and was somewhat relieved by the taking of food.

The physical examination showed a well-nourished young girl, presenting only epigastric pain on deep pressure over McBurney's point.

With the Roentgen fluoroscope it was seen that the bismuth and buttermilk introduced tended to remain in the upper pole of the stomach. The walls of the stomach were parallel; the pyloric portion was well outlined; there were good contractures, and the duodenal cap was well formed and pointed upward. Pressure over the appendiceal region caused a spasm of the lower quarter of the stomach and the first portion of the duodenum. This contraction was so pronounced that it prevented the passage of the bismuth meal through the spastic areas. On releasing the pressure, we noticed that the pylorus and duodenum relaxed and the bismuth could be plainly seen passing through the pyloric canal and the first portion of the duodenum into the second and third portions of the latter.

If this demonstration can be confirmed, I believe it will be found of considerable importance, as pointing the way in which we can utilize reflex spasm of the stomach and duodenum in diagnosing disease in a remote part of the abdomen.

This phenomenon of spasm of the pylorus and first portion of the duodenum induced by pressure in the appendicular region is easily understood when we recall that the appendix has a rich nerve connection derived from the superior mesenteric plexus of the sympathetic, and from the cardiac, hepatic and gastric plexuses. Therefore any irritation originating in the appendix will readily send impulses to the other viscera. Because of the direct nerve connection between the appendix, pylorus and duodenum, it follows that a chronic appendicitis may induce over this arc a reflex gastrospasm, pylorospasm or enterospasm.

If it be granted that the pain elicited in the epigastrium by pressure over the appendiceal region in chronic appendicitis is due to pylorospasm caused by such pressure, the etiology of the gastric symptoms and the hyperchlorhydria associated with appendicitis is clear.

In the case reported we have an interesting demonstration of what we have long believed, that the gastric distress, eructations and other symptoms of appendicitis are due to pylorospasm.

It may be that this will suggest an explanation for the cause of the frequent occurrence of duodenal ulcer in chronic appendicitis, on the basis that the associated spasm of the pylorus and first part of the duodenum induces an ischemia, which allows the gastric juice to attack the mucosa, the resistance of which has been lowered.

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* Read at the annual meeting of the American Gastro-Enterological Association, Baltimore, May 10, 1915.

[1] Aaron, Charles D.: A Sign Indicative of Chronic Appendicitis, The Journal A. M. A., Feb. 1, 1913, p. 350.

The Inactive Scholar.—A mere display of absorbed knowledge does not make a scholar. He is not a passive creature. He is continually active in making old and creating new knowledge.—Theobald Smith: *Boston Med. and Surg. Jour.*

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 1763)

XXI

DIAPHORETICS

One of the functions of the sweat glands is to provide moisture, which by its evaporation cools the body, the secretion of sweat being increased when the production of heat by the body is increased.

This secretion is controlled largely by the heat regulating centers, and when the blood flowing through the carotids is warmed it causes an increased secretion, as does the warming of the surface of the body also.

The activity of the sweat glands is influenced less by the blood supply than is that of most of the glands of the body, and profuse sweating may occur when the skin is pale, and, on the other hand, there may be little secretion when the skin is flushed and hot in fever. However, heat increases the excitability of the nerve endings in the sweat glands and an abundant supply of blood often promotes the secretion.

The composition of the sweat and the daily amount secreted varies widely under normal conditions, and still more widely under pathologic conditions.

The amount of sweat secreted in twenty-four hours by a healthy man with light exercise probably does not often fall below 500 c.c. (1 pint), but with hard work during hot weather the secretion may become more than ten times as active, and under pathologic conditions, as during sudden collapse, the amount secreted in a few minutes may equal the amount which is secreted in an entire day under ordinary conditions.

The sweat contains small amounts of salts, of which sodium chlorid constitutes much the larger amount, and usually only insignificant amounts of organic matter, but when the activity of the glands is greatly increased, during severe muscular exercise or by hot vapor baths, the amount of organic matter is increased notably, and when the kidneys become incapable of secreting urea as fast as it is formed, so that it accumulates in the blood, a considerable amount is found in the sweat, and it is commonly stated that crystals of urea sometimes may be found on the skin under those conditions.

It seems probable that one of the functions of the sweat glands is to provide a means of eliminating water from the blood without a corresponding loss of its salts, but when the loss of water from the blood is made up by absorption either from the gastro-intestinal tract or from the tissues, the loss of salts may be important, and the blood may then have a lower concentration than before active sweating was induced. From this it would seem that the sweat glands supplement the action of the kidneys to an important degree.

Sweating also serves to remove large numbers of bacteria from the deeper layers of the skin, and it is probable that with the profuse sweating of exercise that this action is not without importance.

The methods of inducing active sweating without the use of drugs do not call for discussion in this place; the actions of the analgesic antipyretics and various vasodilators have been discussed elsewhere.

PILOCARPIN

Pilocarpin stimulates all parasympathetic nerve endings and the sympathetic nerve endings in the sweat glands, which, as previously stated, behave toward several drugs like the parasympathetic.

The sweating begins in about fifteen minutes and lasts about two hours. The stimulation of the chorda causes profuse salivation, while the secretion of the bronchial glands may embarrass respiration, and pilocarpin is therefore contra-indicated in patients in whom there is a predisposition to edema of the lungs.

Pilocarpin stimulates the vagus endings, causing moderate slowing of the heart rate, but the action differs essentially from that of digitalis, for the stimulation resulting from small doses tends to pass into depression so that the heart rate increases, and when large doses have been administered the stimulation is brief and the depression almost as great as that resulting from atropin. Hence it is impossible to induce an important degree of slowing of the heart by doses of pilocarpin.

The action of physostigmin resembles that of pilocarpin qualitatively, but it is so much more depressant than pilocarpin to the central nervous system in doses producing an equal diaphoretic effect that it is never used for that purpose.

THERAPEUTIC USES

Sweating serves to increase the concentration of the blood, thus promoting the absorption of dropsical effusions if the amount of water ingested is restricted sufficiently.

Profuse sweating serves to remove a certain amount of various substances which are usually excreted by the kidneys, and while the amount of nitrogenous matter normally excreted in the sweat during rest is insignificant, a much larger amount is excreted during profuse sweating.

The amount of urea eliminated during even profuse sweating would seem to be too small to account for the improvement which results from sweat baths in nephritis and uremic poisoning, hence one cannot say to what the improvement is attributable. It is possible that the removal of chlorids from the blood may relieve the kidney, for, as previously stated, sodium chlorid is actually injurious to the kidneys under certain circumstances.

It is popularly supposed that other toxic substances are excreted in this way, but our knowledge of this subject is as yet very imperfect.

A popular treatment of "colds" consists in the use of large quantities of hot lemonade while the body is kept warm to induce sweating. A hot mustard foot bath is commonly taken at the same time, and this treatment frequently results in the disappearance of the symptoms, probably because the alteration in the distribution of the blood which is induced relieves the local congestion in the nasal passages.

The same objects are often accomplished by the use of the compound powder of ipecac and opium and the mustard foot bath, or by a hot bath taken just before retiring in a warm room; this induces active sweating which continues for some hours, if the patient is kept warmly covered.

Chronic rheumatism and gonorrheal arthritis are often treated by placing the affected limb in a hot-air chamber for half an hour, while maintaining a temperature of from 70 to 90 C. (150 to 180 F.).

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* This is the twenty-first of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

A limb, or even the whole body except the head, may be subjected to a high temperature for a short time if care is taken to provide for a sufficient circulation of air to insure the evaporation of water as fast as it is eliminated in the sweat. Heating a limb or the body causes the body temperature to rise—sometimes as much as several degrees—and cold water or an ice bag should be applied to the head to prevent the effects on the brain which would ensue.

Solution of ammonium acetate and spirit of nitrous ether are commonly used as diaphoretics during fevers, but their action is feeble, and we have many better means of inducing sweating.

Pilocarpin is used as a diaphoretic in certain diseases of the skin, and it is generally credited with the property of stimulating the growth of the hair, but failure is far more common than success when it is used in baldness.

Doses just short of that required to induce sweating are sometimes used to relieve itching in generalized acute eczema, urticaria and other conditions. Its use as a miotic has been discussed.

Pilocarpus owes its therapeutic effects to the pilocarpin which it contains, but it also contains pilocarpidin, which has an atropin action, hence it would seem that there is never any occasion to use the crude drug rather than pilocarpin.

DOSAGE

The diaphoretic dose of the compound powder of ipecac and opium is 0.6 gm. (10 grains); the dose of the hydrochlorid or nitrate of pilocarpin is from 0.001 to 0.01 gm. (1/60 to 1/6 grain).*

EVACUANTS

Drugs that are used to cause evacuation of the bowels are variously classified; according to their origin and chemical nature; according to the intensity of their action, and according to their general mode of action. The term laxative is applied to those which cause a nearly normal movement of the bowel, attended with little or no pain; if the action is much more vigorous and several movements are induced, the term purgative or cathartic is employed; and when a large amount of fluid is evacuated with the feces the action is termed drastic, or hydragogue.

For practical purposes it will be convenient to discuss the evacuants with reference to the part of the intestine on which they exert their main action, for a drug may be laxative or drastic, dependent on the dose employed and other conditions, and evacuants must be chosen with strict regard to their mode of action and the seat of this action.

The processes of digestion are so closely related to the intestinal movements that a brief discussion of the physiology of the gastro-intestinal tract is indispensable for a clear presentation of the subject of evacuants.

The stomach is an automatic organ, containing within its walls the plexuses of Meissner and Auerbach, on which its automaticity probably depends; at any rate the surviving excised stomach is capable of maintaining regular movements, and the processes of secretion of gastric juice may take place after the connection with the central nervous system has been severed, but the stomach is influenced both as to movements and secretions, by two sets of nerves from the central nervous system, the parasympathetic (vagus), the functions of which are here mainly motor, and the sympathetic (splanchnic) which is mainly inhibitory. The control of these two nerves is so coordinated that when one of them is stimulated the other is usually depressed.

The functions of the stomach are to secrete the gastric juice and to maintain movements which serve to mix the food with this juice and to drive the digested food into the intestine.

The length of time during which food remains in the stomach varies with the nature of the food, and it may be influenced greatly by drugs. Proteins are digested more slowly than carbohydrates, and fats pass still more slowly into the intestine, and if they be taken before proteins and carbohydrates they delay their passage through the pylorus.

The sphincter of the pylorus relaxes periodically to allow the fluid portions of the stomach contents to pass into the intestine. An alkaline reaction in the duodenum promotes, an acid reaction delays, this relaxation, but when water or a dilute solution of a salt is taken during digestion, it passes along the lesser curvature of the stomach, and reaching the pylorus without mixing with the rest of the stomach contents, passes rapidly into the intestine. This is of some practical importance with reference to the action of certain of the purgatives.

Strong stimulation of the vagus, such as toxic doses of morphin induce, cause spasmodic contraction of the pylorus and the passage of the stomach contents may be delayed indefinitely. Stimulation of the splanchnic causes cessation of the movements of the normal stomach and relaxation of the pylorus, but such stimulation of the splanchnic cannot overcome strong vagus stimulation. In such cases depression of the vagus is more effective, hence atropin is used to lessen excessive movements of the stomach in gastric ulcer. This also serves to explain why large doses of morphin are contra-indicated in that condition, but small doses, sufficient to lessen pain, may be used, for the gastric effects of vagus stimulation are not usually elicited from less than 10 mg. (1/6 grain), while half that amount exerts a marked analgesic action.

Atropin is not so effective in quieting the movements of the stomach when these are due to diminished tone of the splanchnic, for then the automatic mechanism alone suffices to increase the activity of the movements and depression of the vagus is then of little value. Unfortunately, we have no drug which is of much use in increasing the tone of the sympathetic, unless it be ergot.

The mechanism controlling the activities of the intestines is much like that of the stomach. Peristaltic movements in the intestine consist of waves of contraction preceded by relaxation of the musculature of the wall; these are automatic, but they are influenced by parasympathetic (vagus) and sympathetic (splanchnic) nerves.

The function of the parasympathetic nerve to the intestine is mainly motor and that of the sympathetic is mainly inhibitory, as in the stomach, but it seems probable that there are some inhibitory fibers in the vagus, and some motor fibers in the sympathetic. The vagus is distributed to the intestine as far down as the descending part of the colon, where its place as a parasympathetic motor nerve is taken by the erigens, on which atropin and some other drugs act in the same way that they do on the vagus, but less effectively. The nerves which supply the colon and rectum also supply the uterus, which explains in part the effect of certain purgatives on that organ.

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* On account of lack of space the materia medica of this group is omitted from THE JOURNAL. It will be included when the series is published in book form.

Stimulation of the parasympathetic (vagus or erigens) nerve to the intestine causes active peristalsis, and strong stimulation of certain centers in the medulla is followed by diarrhea. The intestinal movements are also subject to psychic influence, but the mechanism of this is not understood. It is possible that the intestinal peristalsis which accompanies certain emotions may be due in part to an increase of carbon dioxid in the blood, this increase being due to respiratory depression, for carbon dioxid and hydrogen sulphid are normal stimuli to the intestine, causing peristalsis.[1]

The movements of the large intestine differ considerably from those of the small. The contents of the colon are forced along to the descending part because of overfilling from the ileum, and such movements as occur in the ascending and transverse portions are in the reverse direction, serving to keep the contents thoroughly mixed and promoting absorption. In the descending colon the contents are driven very slowly toward the rectum by means of peristaltic movements much like those in the small intestine. It is uncertain whether the rectum normally contains fecal matter except just before defecation, but there is no reason to doubt that its distention by feces causes a desire to go to stool. The retention of feces in the rectum may lead to dilatation, and the development of a form of chronic constipation.

Anything which increases the bulk of the intestinal contents will promote intestinal peristalsis, for this distention of the intestine seems to be one of the chief stimuli to the automatic mechanism. The fluid contents of the intestine may be increased by augmented gastric or intestinal secretion, or by diminished absorption from the intestine into the circulation.

Estimates of the total amount of fluid secreted by the different digestive organs vary considerably, but it may be accepted that from 3 to 5 liters (from 6 to 10 pints) of fluid are secreted daily by the salivary, gastric and intestinal glands and the pancreas and liver together, and that nearly all of this, together with the liquefied food, enters the small intestine, and a large part of this reaches the colon. From this it is evident why so much fluid may be removed from the body by even a mild, but rapidly acting, evacuant. The composition of the blood can be altered rapidly in this way, and especially by those cathartics which stimulate the intestinal glands to increased secretion. With the changes in the composition of the blood thus induced are associated corresponding changes in the secretions and excretions throughout the body, for most of the glands are influenced profoundly by the composition of the blood, as well as by changes in the amount with which they are supplied.

The passage of fluid through the small intestine requires from eight to twenty hours, as a rule (only a few minutes in some conditions of hyperexcitability of the intestine), and the passage through the large intestine requires a shorter period, during which active absorption of fluid takes place, leaving the fecal mass composed mainly of bacteria, undigested food particles, such as the lignin of vegetables, detritus of the intestine, and various principles in small amount, together with enough moisture to make it plastic.

If the intestinal movements are unduly sluggish, opportunity is afforded for the absorption of too large a proportion of fluid, the feces become hard, dry and difficult to propel by the normal peristaltic movements, and it becomes necessary to soften such masses before they can be evacuated.

There are various physiologic ways of preventing this sluggishness of the intestinal movements, and it is obvious that such means should be tried before resorting to the use of drugs. The taking of an adequate amount of cold (not iced) water between meals affords the simplest means of hastening peristalsis in the small intestine, and thus indirectly, in the large, for, as previously stated, when water is taken during digestion it passes rapidly into the intestine, and probably even more rapidly if taken when the stomach is empty.

Some stress is placed on the taking of this cold water between meals, rather than with them, for secretion of the digestive fluids depends to some degree on the amount of fluid in the circulation and tissues. If a normal amount of the digestive secretions is available it supplies the fluid which is requisite for normal peristalsis, and it is only when this has been absorbed, at least in large part, that the additional water taken between meals is required to maintain the bulk of intestinal fluid which is required for active peristalsis.

Some stress is also placed on the use of cold water rather than hot fluids, such as tea and coffee, for hot fluids promote rapid absorption from the small intestine and even less fluid will then reach the colon. It seems probable that the constipating effect which tea and coffee often exert is due in part to the fact that the rapid absorption of fluid from the small intestine induces active diuresis, which is further augmented by the action of the caffein which they contain, and that this diuresis increases the viscosity of the blood, which in turn diminishes the gastric and intestinal secretions, the increased absorption from the intestine, and the diminished secretion into it cooperating to deprive the intestine of its normal stimulus to peristalsis.

A glass of cold water taken on rising is often sufficient to cause prompt evacuation of the bowels.

Laxatives increase the peristalsis slightly and the feces are evacuted before they become dehydrated in the colon.

Many persons eat too little habitually, and without advocating an excessive diet, it is a matter of common observation that one who suffers from mild chronic constipation associated with a spare diet will often have a normal stool soon after taking a large meal.

It is often urged that a part of the food should not be too readily digestible, and while it is true that indigestible food does promote peristalsis, it does not appear to be necessary, provided that the diet is abundant.

A good appetite, which insures the taking of a fairly large amount of food, and good digestion, which insures the secretion of an adequate amount of fluid in the gastro-intestinal tract, are far more effective in securing active peristalsis than a small amount of indigestible food would be, for undigested food constitutes only an insignificant part of the normal intestinal contents, and furthermore, soft indigestible matter always invites the activity of pathogenic micro-organisms.

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[1] Certain emotions, such as fear, exert two types of action in different individuals; in one type the effects are referable to stimulation of the sympathetic, and include high blood pressure and inhibition of the gastro-intestinal movements; in the other their effects are referable in part to stimulation of the parasympathetic nerves, and include low blood pressure and active movements of the gastro-intestinal tract.

An ideal cathartic should pass through the stomach without disturbing it and exert its action on the intestine without causing pain or inflammation, and these conditions must be approximated in order that a drug may be of any use as an evacuant of the intestine.

We are in need of an evacuant which is suitable for subcutaneous injection, and which will then produce purgation without giving rise to excessive irritation at the point of injection, or irritating the kidneys. None of the agents which we use as cathartics is well adapted for therapeutic use by subcutaneous injection, some being local irritants, others having undesired side actions.

(To be continued)

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

PAPAVERINE.—$C_{20}H_{21}O_4N$.—An alkaloid obtained from opium, belonging to the benzyl iso-quinoline group (i. e., it is not a morphine derivative).

Actions and Uses.—Pal found that papaverine relaxes smooth muscle in general—although different organs are affected in a varying degree.

Papaverine is most effective in hypertonic conditions, while it does not interfere materially with the normal movements, for instance of the intestines. It is also a rather feeble central analgesic and a local anesthetic. Its toxicity is low, and neither tolerance nor habituation has been reported. These actions have prompted its use, with reported success, in various spasmodic conditions of the smooth muscles. Pal recommends it especially in all kinds of gastric and intestinal spasms (also for the diagnosis of pyloric spasm); in biliary colic; and in bronchial spasm. Of more doubtful value is its employment in pertussis, hyperemesis, and vascular spasm — angina pectoris, acute uremia and eclampsia. It is admitted to be ineffective in chronic hypertonus. The local anesthetic action, with vasodilatation, has been used against rhino-asthma, and to mitigate the pain of irritant injections.

Dosage.—The oral and hypodermic single dose is 0.03 to 0.08 Gm. (½ to 1¼ grains); daily dose to 0.5 Gm. Single doses of even 1 Gm. are said to be non-toxic.

Papaverine occurs in fine, white rhombic prisms or needles or sometimes in scales; odorless and tasteless.

Papaverine is nearly insoluble in cold water; very sparingly soluble in alcohol, ether, chloroform and benzene if cold; somewhat more soluble in these liquids when hot, but deposited by them on cooling; soluble in warm petroleum ether and in acetone.

Papaverine melts at 147 C.

If about 0.01 Gm. of papaverine be dissolved in 10 Cc. of water containing a few drops of diluted hydrochloric acid, and a few drops of potassium ferricyanide solution added, a lemon-yellow precipitate of papaverine ferricyanide should form at once (distinction from *other opium alkaloids*).

If about 0.001 Gm. of papaverine be dissolved in 0.1 Cc. of sulphuric acid containing in each c.c. one drop of formaldehyde solution, a colorless solution, or at most a faintly yellowish-green color, should be produced; this gradually changes to deep rose and finally becomes brown (distinction from *morphine and its esters*, which give purple or violet colors).

If 0.01 Gm. of papaverine be dissolved in 0.2 Cc. of sulphuric acid the solution should not be colored more than very faintly pinkish or brownish (limit of *cryptopine, thebaine or of other organic impurities*).

If 0.01 Gm. of papaverine be dissolved in 10 Cc. of water containing a few drops of hydrochloric acid, a few drops of a saturated aqueous solution of iodic acid added, and the mixture shaken with chloroform, the chloroform layer should not be colored violet (absence of *morphine*).

If from 0.2 to 0.3 Gm. of papaverine be weighed, dissolved in 20 Cc. of warm water containing a few drops of diluted hydrochloric acid, the solution cooled, 1 Cc. of freshly prepared potassium ferricyanide solution added, the mixture agitated, allowed to stand over night, filtered, the filtrate made alkaline with ammonia water, shaken with several successive portions of ether, the ether solutions combined, washed with water, evaporated, the residue dried at 100 C. and weighed, the weight should not amount to more than 2 per cent. of the weight taken (limit of *foreign opium alkaloids*).

PAPAVERINE HYDROCHLORIDE.—Papaverinae Hydrochloridum.—$C_{20}H_{21}O_4N.HCl$.—The hydrochloride of the alkaloid, papaverine, containing not less than 88 per cent. of papaverine.

Actions and Uses.—See papaverine.

Dosage.—See papaverine.

Non-Proprietary Preparations:

Papaverine Hydrochloride, Merck.—Manufactured by E. Merck, Darmstadt, Germany (Merck & Co., New York).

Papaverine Hydrochloride, Roche.—Manufactured by F. Hoffmann-LaRoche & Co., Basel, Switzerland (Hoffmann-LaRoche Chemical Works, New York City).

Papaverine Hydrochloride, Roche, Tablets.—Each tablet contains papaverine hydrochloride, 0.04 Gm.

Papaverine hydrochloride occurs in a fine white, crystalline powder or in small monoclinic plates or prisms; odorless and having a bitter taste; permanent in the air.

Papaverine hydrochloride is sparingly soluble in water; soluble in alcohol; very soluble in chloroform; insoluble in ether.

An aqueous solution of papaverine hydrochloride has an acid reaction toward litmus paper.

If from 0.2 to 0.3 Gm. of papaverine hydrochloride be weighed, dissolved in 20 Cc. of warm water, the solution cooled, a slight excess of ammonia water added and the mixture shaken with three successive portions of 25 Cc. each of ether, or a sufficient quantity to complete the extraction, the ether solutions combined, washed with water, evaporated to dryness, the residue dried to constant weight at 100 C. and weighed, the weight should indicate not less than 88 per cent. of papaverine. The alkaloid obtained by this process should conform to the tests for identity and purity described under Papaverine.

PAPAVERINE SULPHATE.—Papaverinae Sulphas.—$(C_{20}H_{21}O_4N)_2H_2SO_4$.—The sulphate of the alkaloid, papaverine, containing not less than 85 per cent. of papaverine.

Actions and Uses.—See papaverine.

Dosage.—See papaverine.

Papaverine Sulphate, Roche, Ampules.—Each ampule contains papaverine sulphate solution equivalent to 0.04 Gm. papaverine sulphate. Manufactured by F. Hoffmann-LaRoche & Co., Basel, Switzerland (Hoffmann-LaRoche Chemical Works, New York City).

Papaverine sulphate occurs in white, crystalline powder; odorless and having a bitter taste; slightly hygroscopic.

Papaverine sulphate is soluble in water and in alcohol; very soluble in chloroform; insoluble in ether.

An aqueous solution of papaverine sulphate has an acid reaction toward litmus paper.

If from 0.2 to 0.3 Gm. of papaverine sulphate be weighed, dissolved in 20 Cc. of water, a slight excess of ammonia water added and the mixture shaken with three successive portions of 25 Cc. each of ether, or a sufficient quantity to complete the extraction, the ether solutions combined, washed with water, evaporated to dryness, the residue dried to constant weight at 100 C. and weighed, the weight should indicate not less than 85 per cent. of papaverine. The alkaloid obtained by this process should conform to the tests for identity and purity described under Papaverine.

For a Flyless Town.—The *Bulletin* of the health department of Chicago for April 3 says it is known that 90 per cent. of flies breed in horse manure, and if the manure pile could be gotton rid of the 90 per cent. of flies would vanish and the other 10 per cent. could easily be taken care of. The present ordinance regulating the manure problem would, if enforced, go far toward making Chicago a flyless city. Attempts have been constant to enforce it and over 6,000 notices were given and 1,500 suits were brought last year to abate manure nuisances, many of which suits have not been reached on account of congestion of the courts.

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SATURDAY, MAY 29, 1915

TETANUS CARRIERS

It is thirty years since Nicolaier succeeded in producing tetanic symptoms in animals by inoculating them with soil. The micro-organisms responsible for this result are now known to occur in the superficial layers of the earth's surface. One bacteriologist has reported that soils from thirty-eight cities in different parts of the world were tested by him and that positive evidence of the tetanus bacteria was obtained from all except twelve of the cities. The fact that the soil of cultivated and manured fields seems to harbor the *Bacillus tetani* with especial frequency has been attributed to the probable presence of this germ in the dejecta of some of the domestic animals. Indeed, this is more than a mere supposition, since the bacillus has been found by some to be particularly abundant in the feces of horses. Pizzini[1] even asserted that he had found it in 5 per cent. of the human feces examined; with the added indication that whereas 30 per cent. of the men working about horses and stables have tetanus bacilli in their feces, only 2.2 per cent. of men engaged in other occupations have them.

The tetanus organism is so prominent as a danger to mankind that the problems of its sources and distribution become of the utmost importance. This is intensified by the unusual viability of the spores of this species. Protected from sunlight and other deleterious influences, they may remain virulent for many years. A case has actually been reported in which tetanus was produced with bacilli from a splinter of wood infected eleven years before.[2] The comparative infrequency of tetanus infection in ordinary life does not in any way minimize the wide distribution of the exciting organism in nature.

From observations made in the laboratories of the Sheffield Scientific School of Yale University, Noble[3] has reached the conclusion that the tetanus bacillus appears in the intestines of many normal animals, especially of the herbivora. Apparently it is impossible, with the current technic available, to detect the micro-organism unless it is present in relatively large numbers. Park[4] states that 15 per cent. of horses and calves in the vicinity of New York City harbor tetanus bacilli in their intestines. Noble found that eleven out of sixty-one horses examined, or 18 per cent., showed this organism in their feces. He failed to find them in the excreta of cows; but the investigations on this species were not conclusive, because they were made on a herd of cattle confined in a barn during the winter months when the diet of ensilage was such as to exclude the probability of its containing tetanus spores.

Noble is inclined to the belief that the tetanus bacillus may multiply within the intestines of suitable animals. Some of these seem to offer especially favorable conditions for this growth. Tests on two selected horses showed that the tetanus spores disappeared from the feces of one fourteen days after the beginning of the observations; whereas the other animal harbored them continuously for four months, although, here too, they eventually disappeared. It is highly improbable that this persistence was due to repeated reinfection, because other horses in the same stable showed no signs of fresh invasion by the tetanus bacilli.

If these observations are valid in demonstrating that individual horses may harbor tetanus bacilli in their alimentary tract for many months following an initial infection, the phenomenon would appear to present the case of a "tetanus carrier" comparable with the well-known typhoid carriers and other seemingly healthy disseminators of human infection. How common the "tetanus carriers" may be among horses remains to be ascertained; but, as Noble contends, if we grant their existence, the universal distribution of tetanus spores is not difficult to explain. In any event, the presence of these forms in soils, street dust, fresh vegetables, on the clothing and the skin is easily attributable to fecal contamination, as has so often been maintained.

MENTAL CHANGES IN EXOPHTHALMIC GOITER

It is well known that the mental condition of patients with exophthalmic goiter is frequently not normal, and that a loss of balance of the nervous and psychic equilibrium is one of the first signs of beginning thyroid intoxication. Since these mental disturbances often become prominent, they have received much attention under the title of the "Basedow psychosis."

Léopold Lévi and Rothschild call the thyroid the "glande de l'émotion," and refer to the mental status of exophthalmic patients as a "hyperthyroid temperament." Homburger believes that exophthalmic goiter and the accompanying mental derangements are related in that they spring from a common ground, there being a neuropsychopathic anlage. In six epileptics suffering with exophthalmic goiter, the influence of the latter disease on concomitant psychic disturbances was marked. Many other writers refer to a relation between psychoses and exophthalmic goiter.

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[1] Pizzini: *Baumgarten's Jahresb.*, 1894, xiv, 236.

[2] Henrijean: Ann. Soc. méd. chir. de Liége, 1891.

[3] Noble, W.: Experimental Study of the Distribution and Habitat of the Tetanus Bacillus, *Jour. Infect. Dis.*, 1915, xvi, 132.

[4] Park, W. H.: Pathogenic Bacteria and Protozoa, 1910, p. 232.

The most conclusive proof of relationship lies in a parallelism between the two disorders. As the usual symptoms of exophthalmic goiter increase in severity, the psychosis becomes more marked; as the symptoms improve, the psychosis improves, and if the patient recovers entirely from the goiter, the psychosis likewise disappears. In a series of eighty-six cases of exophthalmic goiter collected by Pharon,[1] he holds the goiter responsible for the accompanying psychosis in sixty-seven instances because of this parallelism. Among these cases were many manic-depressive and psychasthenic individuals. Colla[2] found a similar parallelism in a series of goiter cases compiled for an entirely different purpose. He had under observation two patients who, after having had a Basedow neurosis for some time, finally developed an exophthalmic goiter. Star states that we may have a Basedow neurosis without the typical exophthalmic goiter ever developing. The syndrome of such a neurosis is given by Kraepelin as follows: cracking of the voice, tremor of the hands, poor judgment, illusions, hallucinations, mistrust or suspicion, groundless dislikes and jealousy.

Attempts to explain the occurrence of psychic disturbances in disease of the thyroid gland are based on a relationship between the activities of this gland and the central nervous system. Modern investigators believe that exophthalmic goiter is due to an increased activity of the thyroid (Moebius), to a perverted function (Gauthier), or to a combination of the two. It is not unreasonable to suppose that altered thyroid function would have some effect on the nervous tissues. Recently a connection between the thymus and the thyroid has been established in this disease, and during the time of its maximum development, the thymus seems of special importance to the nervous system. In instances of decreased thyroid activity, the hypertrophied or persistent thymus may act in a compensatory manner, and excessive activity on the part of this gland may be as dangerous as hyperactivity of the thyroid. Bainbridge[3] suggests that the mental changes are dependent on nutritional disturbances of the brain, the latter resulting from a perverted secretion or hypersecretion of these glands. Undoubtedly thyroid secretion influences the nutrition of the entire body, but too little is known of the interrelation of the secretions of the ductless glands to allow us to determine in what manner the nervous tissues are affected.

So far as is known, there has been no microscopic examination of brain tissues from patients with exophthalmic goiter and the Basedow psychosis. Ramadier and Marchand, however, have examined the thyroid glands of many insane patients to find if there was any connection between the psychic condition and the parenchyma of the gland. Among the cases studied were acute and chronic dementia, melancholia, dementia praecox, epilepsy, etc. Aside from considerable fluctuation in the weight of the gland, which is also true in normal individuals, there were no gross changes. Microscopically, numerous circumscribed, sclerotic foci or regions of interstitial inflammation were found, but glands from persons who have not suffered with mental or thyroid disease present similar changes. Further, these changes were present in nearly every instance of mental disease, and did not seem to depend on the type or severity of the malady. These investigators could find no relation between changes in the thyroid and mental disease, and conclude that toxins or other injurious substances which are able to affect the brain and cause mental disturbances may at the same time attack the thyroid.

The manner in which the so-called Basedow psychosis is affected by operation has been considered by Bainbridge, who states that surprisingly prompt effects are noted following thyroidectomy, and that a complete recovery may be reasonably expected in all but the severe forms of psychoses. In such cases it is unreasonable to hope that merely removing the causative factor will repair permanent damage already done the nervous centers.

Thus the rather large and varied group of nervous disturbances attendant on exophthalmic goiter may be classed under one head as the Basedow psychosis. The relation between the goiter and the psychosis is clear and well defined, but the factors which produce the mental changes and the structure alterations which occur are not definitely known.

ENDOWED MEDICAL SCHOOLS

Until the last decade, medical education seemed to have no attraction for the philanthropists. On the contrary, medical schools were considered not only as self-supporting but also as money-making institutions. It is noteworthy, however, that, as the colleges have changed in character during the rapid improvement in medical education in recent years, their financial needs have been met. Especially with the tremendous development of medical education during the past ten or twelve years, there has been a corresponding increase in the number of gifts for endowments, new buildings and support.

These gifts have been so generous for some institutions as to make them equal if not superior in resources to the leading medical schools abroad. Since, in 1906, Harvard Medical School secured its beautiful new buildings, the Peter Bent Brigham Hospital, the Huntington Cancer Hospital, the State Psychopathic and other hospitals have been built in the immediate vicinity and brought into close affiliation, resulting in the development of a great medical center. Johns Hopkins Medical School, with its modest start in 1896, has since been developed by large additions to its endowment, by the increased provision for medical research and the expansion of its hospital, until it, likewise, ranks among the world's great medical schools. There have been marked developments at Pennsylvania and Michigan and, more recently, at Minnesota and Tulane. New medical buildings at less expense but proportionally of equal importance, in recent years, have been erected for the medical schools of the Universities of Georgia, North Carolina and Nebraska and for the Medical College of South Carolina. A beautiful new medical library building has been secured for Leland Stanford, and greatly increased hospital connections, leading to the development of more compact medical teaching plants, have been obtained by Western Reserve University and the University of Cincinnati, as well as by Jefferson, Louisville and Iowa. Vanderbilt has emerged from a long struggle with adversity, has received a liberal endowment and is now undergoing a rapid growth.

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[1] Paaron: Neurol. Zentralbl., 1913, No. 3.
[2] Colla: Allgemein. Ztschr. f. Psychiat., 1913, lxx, 525.
[3] Bainbridge: Med. Press, 1915, xcix, 86.

Because of the multiplicity and variety of these developments in medical schools, one is inclined to underestimate the importance and magnitude of the recent achievements at St. Louis. The dedication of the new buildings of Washington University Medical School marks the completion of another great medical teaching institution in the United States, of which the whole country may well be proud. With generous endowment, the Barnes and the St. Louis Children's hospitals and this high grade medical school have built splendid new buildings in immediate proximity, the total expense being over three million dollars. Of greater significance, however, is the fact that these institutions have formed a close affiliation by which they can work together to fulfil in the best manner possible a threefold function: (*a*) to furnish the best and most enlightened care of the sick in accordance with modern medical knowledge; (*b*) to add to the positive knowledge regarding the cause, cure and prevention of disease through scientific research, and (*c*) to furnish courses of instruction by which the public will be provided with thoroughly trained physicians and nurses.

In the light of all these remarkable achievements in medical education, it is not surprising that as great, or perhaps greater things are being planned in other parts of the country. These recent accomplishments, therefore, give confident expectation that the plans for a ten million dollar medical center at Columbia University will be successfully worked out. Surely, no development is more worthy of generous support; no investment could bring greater returns in the saving of lives, in the prevention of sickness and distress, and in promoting the welfare of the public.

BACTERIAL VARIATIONS

The question of variation, which has long attracted attention in connection with the biologic study of the most diverse forms of animal and plant life, has at length become a timely topic in bacteriology. The variability of micro-organisms in certain respects has, of course, been known since the days of Pasteur; for it was early realized that within the same species of bacteria, different races or strains may exhibit widely varying degrees of virulence. Such fluctuations have appeared to represent, to a large extent, degrees of adaptation on the part of bacteria to the conditions found in the living body. Not only, furthermore, can infectiousness be enhanced by the passage of micro-organisms through animals of certain species, but the virulence of bacteria can also be attenuated by laboratory manipulation.

The problem of variation in bacteria, however, is something more than one of alterations in the property of infectiousness which may or may not be a biologic attribute of relatively recent acquisition. Professor Jordan[1] of the Department of Hygiene and Bacteriology at the University of Chicago points out that in recent years some confusion has arisen through the difficulty of distinguishing true variations from the development of latent characteristics, and from environmental variation. There are qualities or properties which may be dormant in the organism or cell and are manifested only in response to definite external influences. This Jordan illustrates by the case of certain bacteria which form spores in the presence, but not in the absence, of oxygen. He very properly maintains that the sudden appearance in this way of a definite morphologic character cannot be looked on as an instance of true variation. Such a manifestation is merely an immediate response to changed conditions of life — it is the awakening of a dormant character. The importance of standardizing culture mediums lies in no small measure in the fact that latent qualities often play an important part in bacterial identification, and that it is sometimes impossible to recognize a given organism until it is brought into a peculiar environment and has given an appropriate response.

Although the great majority of bacterial variations that have been described belong to the class of apparently adaptive modifications, it now seems likely that true mutations occur. To fit this category they must fill the requirements of appearing suddenly without intermediate stages, of being irreversible, and of not involving all the cells of the parent strain. Jordan describes a bacterial mutation of this sort exemplified in the sudden acquisition of sucrose-fermenting powers by one of a pure line strain of *Bacillus coli.* Cultures of the parent organism grown in sucrose broth for a series of generations as yet have shown no gas or acid production. The particular mutation noted, therefore, seems to be due, in the words of Jordan, to the intracellular or molecular changes brought about by nonspecific influences and not to a direct adaptation to particular environmental conditions. All who are interested in questions of bacterial identification will appreciate the significance of such contentions. The distinction between an innate capability for certain types of reaction and a true fundamental mutation is not always easy to discover. In relation to the possible pathogenicity of organisms, this comparatively new domain of research calls for special critique and discriminating reserve of judgment. New micro-organisms are sometimes merely old ones in a new guise.

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[1] Jordan, E. O.: Variation in Bacteria, Proc. Nat. Acad. Sc., 1915, i, 160.

THE NOMENCLATURE OF DRUGS

The decision of the International Commission on Zoological Nomenclature in regard to the name "ancylostoma" has excited lively interest.[1] This seems somewhat singular in view of the general indifference to the nomenclature of drugs. Perhaps it would be better to say that the apathy of the medical profession toward the deplorably chaotic condition of drug nomenclature is singular and requires explanation. Certainly no irregularity and no innovation in the naming of a parasite can produce the harm and inconvenience that result from the haphazard naming of remedial agents.

The first requisite of successful prescribing is to know what one is giving. If the prescriber has not clearly in mind the exact properties and character of the drug prescribed, he does not know that drug. The mellifluous and meaningless name preferred for its "convenience" to a chemically descriptive name is too often an alias, masking the actual relationships of the substance. Thus, whereas the name "diacetylmorphin" tends to remind the user of the dangerous properties of the drug, the convenient name "heroin" has no such associations; undoubtedly the name has conduced to more reckless employment of this habit-forming preparation. The name "atoxyl" was given to sodium arsanilate presumably to indicate its alleged harmlessness; but the preparation has belied its name by exhibiting decidedly poisonous action. The influence of the name must have been both actively and passively mischievous — actively, so far as it seemed to promise innocuousness, and passively so far as it merely disguised the real nature of the drug.

Since the action of drugs depends on their chemical nature, the names should at least suggest the chemical composition and relationship of the substances (as the name "acetanilid," indicating a compound of acetic acid and anilin) or, at any rate, indicate from what they are derived (as the names "cocain" from coca, and "strophanthin" from strophanthus). The tendency toward names like antipyrin (against fever), diuretin (to promote the urinary flow) and migrainin (for headache)—that is, toward names suggestive of a therapeutic use rather than of the actual properties and character of the drugs—is one to be deplored and discouraged. Such monstrosities as "veronal" (said to commemorate the fact that one of the promoters of the drug thought of this name while passing through Verona) and "stovaine" (a pun on a man's name) are objectionable simply because they give no clue to the real character of the substance.

Then in the case of preparations protected only by trademarked names, the financial side comes in. Hexamethylenamin is quoted under this, its correct name, in a current catalogue at 13 cents an ounce; under the proprietary and therapeutically suggestive names "Uritone," "Urotropin" and "Cystogen," at 35 cents, 60 cents and $1 an ounce, respectively—certainly a high tax for a short name. Theobromin sodium salicylate was for years quoted under its true name at 35 cents an ounce; under the proprietary name "Diuretin," the same substance, not superior in any respect, is quoted at $1.75 an ounce—an increase of 400 per cent. in price for a name!

Why are arbitrary proprietary names accepted so readily, and correct scientific names rejected? Why do some physicians, for instance, stumble over "phenolphthalein," but readily remember the therapeutically suggestive proprietary name "Purgen"? The difference in the number of syllables is not the sole reason, for the five-syllabled name "acetanilid" has become so familiar that even laymen use it freely.

In the first place, the proprietary name is advertised and the scientific name is not. We have adopted the "catchy" names bestowed by manufacturers, not simply because they are short and therapeutically suggestive, but because they are kept before our eyes, forced on our consciousness and stamped on our memories by advertising.

In the second place, in the past every medical student was compelled to learn anatomy and pathology, and was thus enabled to understand the meaning of anatomic and pathologic terms, no matter how many syllables they contained, whereas chemistry and pharmacology were so slighted that most medical students had little, if any understanding, of the principles of chemical terminology. Such students (now physicians) find no difficulty in remembering the anatomic names "supinator radii brevis" because they understand what each component of the term means; but the U. S. P. name "hexa-methylen-amin," so thoroughly understood by the organic chemist, means nothing to them, and consequently they forget it readily. For this they may be pardoned; but they are less pardonable if they try to make their ignorance a reason against the general adoption of a scientific nomenclature. The younger members of the profession, moreover — those who have graduated from the better class of medical colleges within the last ten years — ought to feel that an admission that they do not understand such chemical terms is discreditable; it means that they have failed to profit as they should have profited from both their preliminary and their medical education. It is time for the profession generally to realize that an anatomy whose nomenclature depended on the inexact terminology of common speech would be no more discreditable and hampering to modern medicine than a pharmaceutical chemistry similarly bereft of scientific nomenclature. We should eschew the fanciful and therapeutically suggestive names provided by manufacturers. For nonpatented substances, let us use the U. S. P. or other nonproprietary names, and for new patented products, let us insist that names at least suggesting the chemical (not the alleged therapeutic) nature of the drug be adopted.

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[1] "Ancylostoma, not Ankylostoma," Current Comment, THE JOURNAL A. M. A., March 27, 1915, p. 1081; Correspondence, April 17, 1915, p. 1346.

Current Comment

UREA IN HUMAN SPINAL FLUID

One of the criteria which have been offered as an indication of the genesis of special fluids in the body by a process of true secretion, that is, cell function, instead of mere transudation, is the existence of specific constituents in the product. Pepsin is ordinarily not found in the blood or the lymph; and similarly, other individual enzymes are confined to special secretions in the organism. The boundary lines respecting the distribution of enzymes are perhaps not so strictly drawn as they were a few years ago, but distinct limits of occurrence unquestionably exist. So in the case of other chemical substances, their appearance may be limited to a single fluid, as is that of the lactose of milk. The index of secretion is not limited, however, to the qualitative nature of the product. The dynamic factors of its production are also significant. Whether the cerebrospinal fluid is a true secretion or merely a modified tissue space fluid, or lymph, has not been conclusively determined on the basis of the foregoing principles. Some of the existing evidences have already been reviewed.[1] At one time the cerebrospinal fluid was looked on as unique in that it was supposed to be devoid of some of the soluble constituents characteristics of blood and lymph, notably sugar and some of the inorganic components. Little by little, with the increasing use of lumbar puncture, evidence has been furnished for the abundant presence of such substances for which the walls of the cerebrospinal spaces were once supposed to be impermeable. The latest to be added to the list is urea, the widespread distribution of which has been indicated before.[2] At the Hospital of the Rockefeller Institute for Medical Research, Cullen and Ellis have shown that when samples of human blood and spinal fluid are drawn within a few minutes of each other, the differences in the urea content of these two fluids is rarely greater than 2 milligrams per hundred cubic centimeters.[3] The greatest difference observed in thirty-two determinations on fifteen different patients was 11 mg. per hundred c.c. of fluid. The urea values varied from 20 to 42, and from 22 to 46 mg. of urea per hundred c.c. of serum and spinal fluid, respectively. These figures all lie within the possible range of normal variation. The occasional difference between the spinal fluid and the blood serum may be due to the rapid rise and fall of blood urea at different stages of protein digestion. From the nature of the processes of production of the spinal fluid, one might expect the changes in its urea content to lag somewhat behind those of the blood. As Cullen and Ellis remark, the results are in accordance with the already well-founded view[2] that the animal tissues are, in general, osmotically permeable to urea, which therefore tends to reach the same level of concentration in the different body fluids.

PELVIC MEASUREMENTS OF PHILIPPINE WOMEN

There is a traditional belief, supported by statements of scientific observers, that in childbirth among primitive peoples the mothers experience comparatively easy labor. An important, if not dominant factor in bringing about such a result must rest in anatomic conditions, and notably in the relationship in size between the pelvis of the mother and the head of the newly born infant. It has been asserted[4] that the pelvis of the females of less civilized races is narrower than that of the Caucasian race. A study of pelvimetry and cephalometry among Filipinas undertaken by Dr. Honoria Acosta-Sison[5] among patients in the obstetric wards of the Philippine General Hospital at Manila has furnished new data on this subject. It shows, by comparison with standard measurements made in the United States and elsewhere, that the diameters of the Filipino pelvis are shorter than those of the American or European pelvis. The relation of one diameter to another is altered in such a way that the proportion of the crests with the spines in the Filipino pelvis is much smaller than the proportion of the same diameters in the European or American pelvis, and that the proportion of the diagonal conjugate with the other diameters in the Filipino is very slightly larger than in the American. These facts, elicited by measurements of 117 cases, would seem to show that the Filipino pelvis is narrower and relatively deeper than the American pelvis. This diminution may be explained by the smaller stature of the Filipinas. More striking, however, is the observation that despite the smaller pelvis, the transverse diameter of the pelvic outlet in the Filipinas is the same as that of the Caucasian race. The relative enlargement of the outlet is explained by Acosta-Sison as the outcome of the habitual squatting position that the Filipino assumes, and by the fact that the custom of carrying of children astride the mother's or nurse's hip may also have an effect toward enlargement of the transverse diameter. The cephalic diameters of the Filipino children are smaller than those of Americans, and thus they are proportionate to and compensate for the smaller maternal pelvis.

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[1] The Production of Cerebrospinal Fluid, editorial, The Journal A. M. A., March 28, 1914, p. 1018; The Cerebrospinal Fluid, Nov. 14, 1914, p. 1764; Cushing, Harvey; Weed, L. H., and Wegefarth, P.: Jour. Med. Research, 1914, xxxi, 1.

[2] The Distribution of Urea in the Body, editorial, The Journal A. M. A., Sept. 26, 1915, p. 1115.

[3] Cullen, G. E., and Ellis, A. W. M.: The Urea Content of Human Spinal Fluid and Blood, Jour. Biol. Chem., 1915, xx, 511.

[4] Riggs: A Comparative Study of White and Negro Pelves with a Consideration of the Size of the Child and Its Relation to Presentation and Character of Labor in the Two Races, Johns Hopkins Hosp. Rep., 1904, xii, 421.

[5] Acosta-Sison, Honoria: Pelvimetry and Cephalometry among Filipinas, Philippine Jour. Sc., Sec. B, 1914, ix, 493.

AMERICAN SANITARY MISSIONARIES

A note from Dr. Samuel T. Darling, mailed at Gibraltar, announces his safe arrival to that point on his journey to Asia. It will be remembered that Dr. Darling was appointed as a member of the International Commission, Rockefeller Foundation, to investigate the cause of anemia in Malay. He has been connected for about ten years with the health administration in Panama — the work which set a standard for the world to follow. It is significant that the men connected with that work are being selected to act as missionaries in carrying to other parts of the world the efficiency of service there displayed. The work of Dr. Darling had already been recognized abroad by an honorary fellowship in the Society of Tropical Medicine and Hygiene of London, and a corresponding membership in the Société de Pathologie Exotique de France, the latter for his discovery of *Trypanosoma hippicum.* The discovery of this organism was followed by a complete investigation, which yielded a method of immunizing against this type of trypanosomiasis of mules, horses and other animals, and the knowledge that the disease was transmitted in corrals by the common house-fly. Dr. Darling accompanied Major-General Gorgas to the Rand and Rhodesia, and took part in the studies made there. The best wishes of his colleagues go with him to his new field of endeavor.

ONCE MORE A WARNING!

There is continually coming to this office evidence of the fact that doctors are still allowing themselves to be swindled by unauthorized solicitors under various representations. Evidence has been received that at least ten physicians have been victimized by these persons during the last six weeks. One active worker calling himself E. B. Huntington carries blanks bearing the name of the National Educational Association, 130 Nassau Street, New York City. As we have intimated before, there is no such association at that address. Two checks bearing the endorsement of this individual have been received this week. In one Huntington inserted his own name, making the check payable to him "or to the American Medical Association" — a pure case of forgery; in the other case the doctor apparently was inveigled into making the check payable to Huntington direct. In the latter case the doctor wrote "for the American Medical Association," evidently supposing that this would protect him. Huntington is not the only man who is traveling over the country working doctors and others. May we suggest that those who would avoid being swindled should not pay money to traveling men whom they do not personally know? Checks should not be made payable to any person, but to the concern the person claims to represent; and even then one should be very sure that there actually is such a concern. Money should not be paid to any one claiming to represent the American Medical Association unless he carries credentials bearing the signature of the Editor and General Manager and the seal of the Association.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

Personal.—Dr. William P. Davidson, Sullivan, sustained a fracture of the clavicle by the overturning of his automobile near Danville, May 14.——Dr. Edmund A. Behrendt, Bloomington, who has been ill in St. Joseph's Hospital, is reported to be improving.——Dr. Isaac L. Beatty, Fairview, has been appointed an internal revenue collector and inspector under the Harrison law.——Dr. James A. Boyer, Carmi, injured his arm seriously while cranking his automobile, May 10.

State Medical Society Meeting.—At the sixty-fifth annual meeting of the Illinois State Medical Society held in Springfield, May 18 to 20, the following officers were elected: president, Dr. Charles W. Lillie, East St. Louis; president-elect, Dr. William L. Noble, Chicago; vice-presidents, Drs. Fred S. O'Hara, Springfield, and Henry P. Beirne, Quincy; secretary, Dr. Wilbur H. Gilmore, Mt. Vernon (reelected); and treasurer, Dr. Andrew J. Markley, Belvidere (reelected). The next annual meeting will be held in Champaign in May, 1916.

Lax State Health Laws.—After a three-months investigation of health conditions in Illinois by Surg. Samuel B. Grubbs, U. S. P. H. S., the Illinois State Board of Health, health laws of the state and the attitude of the people of Illinois toward the betterment of conditions are criticized severely. Recommendations are made that the State Department of Health should be reorganized by establishing the following divisions: communicable diseases, sanitation, vital statistics, publicity and education and examination, registration and accounts. The state, outside of Chicago, should be divided into at least eight districts with an inspector in each; a sanitary engineer should be named; births and deaths should be registered; the board should be notified of certain diseases, and vaccination should be required as a prerequisite to school attendance; occupational diseases should be studied; factories should be inspected, and communicable diseases should be placed under a stricter control. The practice of licensing itinerant medicine venders is vigorously condemned. The recommendation is made that the State Board of Health should be given supervision over the entire system of dairy inspections and, in conclusion, a vigorous campaign of sanitary education for the people of the state is urged.

Chicago

New Psychopathic Hospital.—Drs. Harold N. Moyer, Hugh T. Patrick and Sydney Kuh have been appointed a committee to investigate the new Psychopathic Hospital and to make recommendations for its utilization. The county board will then be asked to make the necessary appropriation for carrying on the work.

Play and Recreation.—On May 19 a special meeting of the City Club was devoted to a discussion of play and recreation in Chicago, and a special exhibit of Chicago's school parks and properties was held. Papers were read by the mayor, members of the park commission, principals of the schools, and several invited authorities on playground subjects.

Personal.—Dr. Wallace K. Harrison has been elected a director of the Western Unitarian Conference.——It is announced that Mayor Thompson has decided to retain Dr. Theodore B. Sachs at the head of the Municipal Tuberculosis Sanatorium.——Dr. and Mrs. Anders Doe celebrated their silver wedding anniversary May 17.——Dr. Julius Gottlieb is reported to be seriously ill with pneumonia.——Dr. Robert L. I. Smith has arrived in Bordeaux on the Steamer *Espagne*.——Dr. James W. Walker has been placed in charge of a military hospital in London and will sail for England in a few days.——Dr. R. C. Crumpton, for the past year connected with St. Luke's Hospital, has removed to Webster City, Iowa.

The Chicago Unit for Service Abroad.—The following physicians have already volunteered for service in the field hospital organization under the charge of Dr. James M. Neff, chief of staff: Drs. Philip S. Chancellor, Earl P. Ball, Robert B. Acker, Elbert L. Cavenee, Philip M. Dale, Joseph J. Hilton, R. B. Haven, A. H. Hixon, Frederick C. Jacobs, Daniel F. Hayes, John G. O'Malley, Charles A. Maghy, William A. McGuire, C. R. Stanley, S. Walker, George G. Davis, G. E. Meyer, and the following out-of-town physicians have volunteered, Drs. John S. Fox, Silverton, Colo.; Lee Edgar and Waldo Richardson, Seattle, Wash.; R. D. Long and J. K. McLean, Oklahoma City; C. S. Smith, Kalispell, Mont.; S. Terrall, Dallas, Tex.; J. R. Taylor, Madison, Wis.; W. J. Uppendahl, Peoria, Ill.; R. L. Thompson, St. Louis, and George P. Gill, Rockford. Headquarters of the Chicago unit have been established at rooms 237-238 Monadnock Building, and are open from 2 to 6 each day.

MARYLAND

Honor to Councilman.—A banquet was given May 13, by his former students and friends, in honor of Dr. William T. Councilman, formerly of the medical faculty of Johns Hopkins and now of Harvard Medical School. At the banquet a portrait of Professor Councilman was presented to him. The presentation address was made by Dr. Charles W. Mitchell, Baltimore, and Dr. William S. Thayer acted as toastmaster.

Special Medical Department Established.—Dr. Winford H. Smith, Baltimore, superintendent of Johns Hopkins Hospital, announces that a gift of $16,500, to be paid in three yearly installments, has been made by John D. Rockefeller, Jr., to be used for a special medical department at the hospital, to be established in September for the treatment of contagious diseases, with special reference to syphilis. The money is donated through the Rockefeller Bureau of Social Hygiene. The work of the clinic will be in charge of a committee consisting of Drs. George Walker, Theodore C. Janeway and Smith, and the dispensary will be in charge of Dr. Albert Keidel, Baltimore.

Personal.—Dr. Roscoe W. Hall has succeeded Dr. David K. Henderson as resident physician of the Phipps Clinic of Johns Hopkins Hospital. Dr. Henderson has been appointed superintendent of the Royal Asylum of Scotland, Glasgow, and will assume his new duties about June 1. He sailed for Glasgow May 15. Dr. Charles B. Thompson, Baltimore, has been appointed first assistant resident physician at the Phipps Clinic.——Dr. Walter L. Nicholls, Baltimore, underwent operation at Mercy Hospital, May 13, and is reported to be doing well.——Dr. Paul M. Stewart, U. S. P. H. S., has been assigned to take charge of the branch office in Baltimore during the absence of Surg. James A. Nydegger, Baltimore, who sailed for Europe recently to study medical conditions abroad.——Senior Surg. Henry R. Carter, superintendent of the United States Marine Hospital, Baltimore, and government sanitary expert, is recovering from a slight operation. He leaves shortly for the South where he will engage in sanitation work in the malaria districts of Alabama, Georgia and other Southern states for the next three months. During Dr. Carter's absence, Surg. Charles W. Vogel will be in charge of the hospital.

NEBRASKA

State Board Changes.—Governor Moorhead on May 20 appointed Dr. Lucien Stark, Hartington, secretary of the State Board of Health, succeeding Dr. Porter F. Dodson, Wilber, removed.

Correction.—In The Journal for May 22, it was announced that the state hospital building to be erected on the campus of College of Medicine of the University of Nebraska, Omaha, would cost with equipment, $50,000. The state legislature has appropriated $50,000 for the erection of the building and the equipment is not included in this sum. The hospital is to be a teaching hospital for the University of Nebraska, under the control of the board of regents, and is to receive indigent patients from the entire state.

State Association Meeting.—At the forty-seventh annual meeting of the Nebraska State Medical Association held in Hastings, May 18 to 20, under the presidency of Dr. John P. Gilligan, O'Neill, the following officers were elected: president, Dr. Edward W. Rowe, Lincoln; vice-presidents, Drs. Arthur C. Stokes, Omaha, and James V. Beghtol, Hastings; secretary, Dr. Joseph M. Aikin, Omaha (reelected); treasurer, Dr. Alexander S. von Mansfelde, Ashland (reelected); librarian, Dr. William P. Wherry, Omaha; delegates to the American Medical Association, Drs. Albert R. Mitchell and Artemas I. Mackinnon, Lincoln; alternates, Drs. Francis A. Long, Madison, and Burton W. Christie, Omaha; councilors, first district, Dr. B. Potts, Omaha; second district, Dr. Henry J. Lehnhoff, Lincoln; third district, Dr. Ira H. Dillon, Auburn; fourth district, Dr. Lucien Stark, Hartington; fifth district, Dr. Robert C. Byers, Nickerson; sixth district, Dr. John C. Malster, Stromsburg; seventh district, Dr. Wesley L. Curtis, Fairburg; eighth district, Dr. Patrick J. Flynn, O'Neill; ninth district, Dr. Miles S. Moore, Gothenburg; tenth district, Dr. Claude B. Calbreath, Hastings; eleventh district, Dr. Axel E. Hedlund, Dalton, and twelfth district, Dr. Alfred J. Stewart, Mitchell. The next meeting of the association will be held in Omaha.

NEW YORK

Tuberculosis Ward for Penitentiary.—In the Clifton prison there are said to be 407 convicts suffering from tuberculosis while there are only eighteen beds for tuberculosis patients. For this reason the governor has approved an appropriation for $75,000 for the erection of a general hospital containing a tuberculosis ward.

Reunion of University.—The fortieth annual reunion of the Alumni Association of the Medical Department of the University of Buffalo will be held in Buffalo June 1 to 4. On the first day there will be class reunions of the classes graduated five years and multiples of five years ago, and luncheons. On the second and third days, there will be scientific sessions and the annual business meeting. On Thursday evening, the alumni banquet will be held and on Friday morning, the graduating exercises will be held at the Teck Theater.

Fines for Quacks.—Of the 53 persons arrested several weeks ago in a campaign started by the district attorney, the police and the Medical Society of the County of New York against alleged fake medical museums, 23 were arraigned in special sessions on May 21. Six of the defendants were fined amounts ranging from $500 to $150. The others, who were merely employes, were released on suspended sentences. The defendants agreed to vacate the premises they had been occupying, not to advertise, to destroy exhibits in the museums, and not to permit unlicensed men to represent themselves as physicians.

Will Not Cut State Hospital Appropriations.—Governor Whitman announces that he will not veto the request for about $1,250,000 in the supply and construction bills of the state hospitals. Dr. William Mabon, superintendent of the Manhattan State Hospital and ex-state health commissioner, recently appeared before the governor and showed why this large appropriation was required. His data shows that the average overcrowding in the state hospitals is 22 per cent. and the overcrowding in the Manhattan State Hospital is 30 per cent. There are at present 1,400 more inmates than are provided for by the capacity of the buildings.

Rochester Has Clean-Up Week.—The Public Health Committee of the Rochester Chamber of Commerce had a "clean-up week," beginning May 16. Thirteen teams were appointed for the purpose of inspecting the city conditions, each team consisting of one member of the public health committee, one member of the fire prevention committee, and one uniformed fireman. A circular listing all known methods of getting rid of rats, mice, flies and mosquitoes was prepared by the committee. In addition, 15,000 clean-up "ticklers," indicating numerous specific localities that might profitably be inspected, were distributed in the schools and the children were asked to examine their own homes and surroundings and record the conditions that should be remedied and what they have done to improve them.

Vaccination Campaign.—Under the title "The Mutilated Vaccination Law" a writer in the *Bulletin* of the Health Department discusses the menace in the amendment of the vaccination law which does not make vaccination compulsory for school children excepting in cities of the first and second class, "unless smallpox exists in any other city or school district or in the vicinity thereof and the state commissioner of health shall certify in writing to the school authorities" that smallpox exists. Under this law the school children of the city will be protected in a fairly satisfactory degree, but the adult population with its immense quota of immigrants and visitors is by no means protected. A vigorous campaign for the protection of the adult population will be conducted.

New York City

Guarding Against Typhus.—Owing to the reported prevalence of typhus fever at Greek ports, eighty-two steerage passengers who arrived on the Steamer *Patris*, May 16, were held at quarantine for observation.

Arbuckle Memorial Building Opened.—The Arbuckle Memorial, completing the north wing of the Long Island College Hospital, Brooklyn, was opened May 24. The wing is five stories in height, 210 by 34 feet, and cost $250,000. It was presented to the hospital in memory of the late John Arbuckle by two of his sisters. The new building will house 171 male patients and, besides the wards and private rooms, it contains a clinical laboratory for 45 medical students and three research laboratories. The addition of this wing completes the physical plant of Long Island College Hospital, valued at two million dollars. The institution now has seven buildings devoted to the education of medical students and to the care of the sick, with accommodation for nearly 500 patients.

Personal.—The degree of Doctor of Laws was conferred on Dr. Simon Flexner by Johns Hopkins University on May 20.——Dr. Lucien P. Brown, state food and drug commissioner of Tennessee, has been appointed director of the bureau of food inspection in the Department of Health at a salary of $5,000 per annum.——Dr. and Mrs. George Paul have sailed for Liverpool on the *St. Paul*.——Dr. Robert T. Irvine, Ossining, was seriously injured by the overturning of his automobile near Ossining, May 15.——Dr. Benjamin Schwartz has been appointed to fill the vacancy in coroner's physicians caused by the resignation of Dr. Otto H. Schultze.——A dinner was tendered to Dr. A. L. Wolbarst on May 12 by the physicians who had attended his genito-urinary clinics at the West Side German Dispensary and Hospital, during the winter session.

NORTH DAKOTA

Hospital to Be Built.—The commissioners of Mercer County have accepted the proposition of the citizens of Hazen to erect a county hospital at that place to cost about $10,000. The citizens of Hazen will erect the building and install the heating and lighting plant, and the county will furnish and maintain the institution until it becomes self-supporting.

State Association Meeting.—At the twenty-eighth annual meeting of the North Dakota State Medical Association held in Bismarck, May 11 to 13, under the presidency of Dr. R. Hudson Beek, Lakota, [illegible] s were elected: president, Dr. Victor H. [illegible] vice-presidents, Drs. Victor J. LaRose, [illegible] M. Williamson, Grand Forks, and Edgar A. Pray, Valley City; secretary, Dr. Hezekiah J. Rowe, Casselton (reelected); treasurer, Dr. William F. Sihler, Devils Lake; councilors, Drs. Allan L. Nicholson, Max; William P. Baldwin, Casselton; Gustave Golseth, Jamestown, and Charles MacLachlan, New Rockford; delegate to American Medical Association, Dr. Charles S. Crane, Grand Forks; alternate, Dr. James P. Aylen, Fargo. The association recommended for the State Medical Examining Board, the names of Drs. Hugo O. Altnow, Mandan; B. Lyle Meigs, Edgerley, and Henry G. Woutat, Grand Forks. Devils Lake was selected as the next place of meeting.

PENNSYLVANIA

Jefferson Alumni Meeting.—More than seventy-five graduates of Jefferson Medical College and members of the southern chapter of the Jefferson Alumni Association met in York, May 13, and elected Dr. Martin L. Wolford, Harrisburg, president, and Dr. J. Harvey Miller, York, secretary-treasurer. Harrisburg was selected as the place for the all-day clinic and meeting next year.

Summer Course in Anatomy.—The department of anatomy of the school of medicine of the University of Pittsburgh, announces that it will give six summer courses in anatomy this year, from July 5 to August 28, inclusive. These courses are in gross anatomy; cytology, histology and splanchnology; hematology; embryology; neurology, and anatomy of the eye, ear, nose and throat.

Antivivisectionists Lose Again.—An attempt made in the house, May 18, to destroy the effect of the Gerberich bill, which allows vivisection of animals in the interests of science, was voted down, 75 to 50. The bill has passed the senate and is now on third reading in the house. The bill provides for the sale, distribution and use "for the promotion of biological science and for the discovery of new methods of treatment in medicine and surgery" of unclaimed animals in the public pounds. The amendment offered today provided that the bill should apply to animals "except dogs and cats." As this practically would have destroyed the purpose of the measure, it was voted down.

Personal.—Dr. Samuel A. Silk, for the last two and one-half years a member of the staff of the Pennsylvania State Sanatorium, Mt. Alto, has resigned to take up private practice in Sharon.——Dr. Robert Kilduffe, Jr., has been elected director of the pathological department of the Chester Hospital.——Dr. Henry J. Lacier, Bethlehem, underwent surgical operation at Johns Hopkins Hospital, May 6.——Dr. Charles H. Smith has been elected a member of the medical staff of the York Hospital.——Dr. Thomas C. Detwiler, Lancaster, sustained a comminuted fracture of the leg and other severe injuries by the overturning of his automobile near Lancaster, April 30.

Dixon Reappointed.—Dr. Samuel G. Dixon, Philadelphia, whose renomination as state commissioner of health was sent to the senate by the governor, May 17, was confirmed by that body, May 18. This is the third reappointment of Dr. Dixon to this responsible position and he has completed nearly ten years of valuable service to the commonwealth in this position. Under his direction the department of health has attained high rank among the public organizations of the country and its activities have reached all sections of the state. In the campaign against tuberculosis, 115 tuberculosis dispensaries have been established and three state sanatoriums have been constructed under Dr. Dixon's supervision. Since he assumed charge of the health department, the death rate from typhoid fever has decreased more than 75 per cent.

Philadelphia

Hospital Opened.—The new home of the Babies' Hospital of Philadelphia, Manoa Road near Llanerch, was formally opened May 15.

Rodman Honored.—The annual social evening of the West Branch of the Philadelphia County Medical Society was held at the Hotel Marlyn, May 17, and Dr. William L. Rodman was the guest of honor.

Personal.—Dr. Simon Wendcos has been elected a director of the Hebrew Literary Society.——Dr. William H. E. Wehner has been appointed medical director of the Fidelity Mutual Life Insurance Company, succeeding Dr. William H. King, resigned.

Municipal Courts New Clinic.—A clinic for inebriates has been introduced by the chief probation officer of the Domestic Relations Court, under which men addicted to drink and brought before the court or complained of by their wives, can undergo medical treatment. Dr. John Wanamaker, third city police surgeon, has volunteered his services.

Commencement.—The sixty-fifth anniversary and annual commencement exercises of the Woman's Medical College of Pennsylvania will be held Wednesday, June 2, at the Garrick Theater. The alumni conference of the college will be held June 4 and 5. Among the speakers at the commencement exercises will be Dr. Richard C. Cabot of Harvard University, the originator of social service work in connection with hospitals.

Philadelphia Contingent for Paris.—The Philadelphia contingent for service in the American Ambulance Hospital at Neuve will sail for Europe, June 12. Dr. J. William White will be executive head of the expedition; Dr. James P. Hutchinson, surgeon; Dr. Daniel J. McCarthy, neurologist; Drs. Edmund B. Piper, Walter Estell Lee, Arthur E. Billings and Peter McCall Keating, assistant surgeons, and Dr. Samuel Goldschmidt, bacteriologist. Four nurses will also accompany the party.

Doctors Volunteer for War.—The names of six physicians who have volunteered for the medical unit of thirty doctors now being raised by William Potter, former minister to Italy, for war medical service in France, have been made public. Those accepted are, Drs. John F. McCloskey, Frank C. Abbott, John A. Murray, Patton, Pa.; LeSieur Weir, Philadelphia; Edward L. Moore, Statesboro, Ga., and Alvin M. Struse, Roxborough. Dr. Charles E. de M. Sajous has made a conditional offer to join the unit, provided the situation between the United States and Germany does not become acute and war threaten.

Jewish Hospital's Semicentennial.—The fiftieth anniversary of the Jewish Hospital, which really occurred February 15 last, will be observed with impressive ceremonies on Memorial Day, when Governor Brumbaugh and other prominent men will take part in the exercises. Since the opening, fifty years ago, 33,248 patients have been treated in the hospital, 1,259 in the Lucien Moss Home, 3,300 in the Guggenheim annex, and nearly 164,000 in the dispensary. The cost of maintenance in 1865 was less than $5,000, while during the last year it was more than $149,000. In 1865 there was but one medical assistant, while at present there is a chief resident, with six assistants, and eighty-eight consulting physicians and surgeons.

Clean-Up Week.—So as to carry clean-up week into slum homes in the foreign section of the city, a group of women physicians from the Woman's Medical College has carried on an active campaign of sanitation, the out-patient department of the college being used for headquarters. The foreign settlement in the neighborhood was divided into sections to each of which a physician and one or more nurses was appointed. These started an energetic house-to-house canvass, urging the householders to clean and air their homes; disinfect sinks and drains and to clean up alleys and yards, etc. The committee in charge of this work consisted of Dr. Alice W. Tallant, chairman, and Drs. Theodore LeBoutillier, Ellen C. Potter, Leo H. Bernd, Katherine Radley, Helen H. Taylor and Jennie Severine.

CANADA

Health Inspector Killed.—Among the list of the killed in action, May 11, appears the name of Private Joseph H. Jones, formerly health inspector for the municipality of Assiniboia.

Public Hygiene Instruction.—The first class in public hygiene instruction under the direction of St. John's Ambulance Association was held May 10 in Saskatoon. Dr. John A. Valens was the lecturer of the evening.

Meeting Cancelled.—The annual meeting of the Canadian Association for the Prevention of Tuberculosis, which was to have been held in Vancouver at the same time as the Canadian Medical Association, has been cancelled until after the war.

Fraternity Cemented.—The council of the College of Physicians and Surgeons of Manitoba has been successful in its negotiations with Great Britain for reciprocity and now it is announced that graduates of the Manitoba Medical College may practice anywhere in the British dominions without further examination.

War Notes.—Capt. David Smith, M.D., Stratford, Ont., has been appointed to command the field hospital of the Thirty-Third and Thirty-Fourth Overseas Battalions at London Concentration Camp.——Vancouver, B. C., has offered to equip a general hospital of 1,040 beds for service abroad. It is to consist of 35 surgeons, 75 nurses and 200 men.——A Western contingent of the Canadian Army Medical Corps left Halifax, N. S., early in April. It comprised detachments from Victoria, Vancouver, Edmonton, Calgary and Winnipeg.——Dr. Neiley, New Glasgow, N. S., is serving with one of the hospitals in France.——Dr. Charles M. Burroughs, Sudbury, Ont., has enlisted for service in the Army Medical Corps.——Dr. Howard Ferguson, Toronto, is serving as surgeon on one of the English Channel transports.——Drs. Robert H. Smith, Wickware and William M. Brown, Moose Jaw, Sask., have received appointments in the Royal Army Medical Corps.——Dr. William R. Mason, Parry Sound, Ont., has volunteered for service with the St. John's Ambulance Corps in France.——Dr. Andrew Croll, Saskatoon, Sask., has left for hospital service, probably in Havre, France.——Major David A. Clark, Toronto, was among the wounded at Langemarck.——The divisional officers of the second Canadian contingent have been named. Lieut.-Col. John Taylor Fotheringham, Toronto, is named assistant director of medical services, and Major Jacques, Ottawa, deputy assistant director of medical services.——Dr. Herbert A. Bruce, Toronto, tendered a goodby reception to the Toronto University Base Hospital on the afternoon of May 13. Lieutenant-Colonel Roberts was present with his staff, and some eighty nurses. The hospital required $30,000 for equipment. They obtained some $80,000, the Fulford estate, Brockville, Ont., contributing $40,000. In addition a woman of Cleveland, Ohio, donated a handsome limousine for convalescent soldiers.——Lambton County (Ont.) medical men offer to furnish a general hospital of 200 beds for the use of the Canadian militia in France.

Personal.—Dr. Reginald de Lothbiniere-Harwood, Edmonton, Alta., has been gazetted lieutenant-colonel and placed in command of the Fifty-First Battalion and has volunteered for overseas service.——Dr. Angus W. McPherson, medical officer of health of Peterboro, who left to join the army medical service May 10, was presented on the evening before with a silver tea service on behalf of the various civic bodies of Peterboro.——Dr. F. F. Wesbrook, president of the University of British Columbia, was entertained in Minneapolis, May 8, while on his way from the East to Vancouver.——Dr. Alexander Fisher, Calgary, Alta., has been appointed superintendent of the Calgary hospitals.——On April 30, Drs. J. J. Field and Warren A. Dakin, Regina, who have been appointed to the Royal Army Medical Corps, were given a banquet by the medical fraternity of the city.——Dr. H. V. Robinson, for three and one-half years a member of the medical staff of the Protestant Hospital for the Insane, Verdun, Que., resigned to accept a position in Montreal.——Dr. Darius A. Coon, Elgin, Ont., has been appointed superintendent of the General Hospital, Kingston, Ont., in succession to Dr. Harry A. Boyce, resigned.——Dr. John P. Sinclair has been appointed medical officer of health of Gananoque, Ont.——Dr. John W. S. McCullough, chief medical officer of Ontario, has been appointed assistant sanitary expert to the International Waterways Commission.——Dr. John D. Courtnay, Ottawa, has been appointed a special member of the Canadian medical force at the front to look after wounds and diseases affecting the eyes, ears, noses and throats of soldiers.——During the absence abroad of the editor, Dr. Andrew Macphail, Montreal, and the general secretary, Dr. William W. Francis, Montreal, the Canadian Medical Association and its *Journal* will be conducted by Drs. George Gordon Campbell and John W. Scane, Montreal. The former for many years edited the *Montreal Medical Journal*, and the latter is registrar of the medical department of McGill University.——President Falconer of the University of Toronto and Prof. Irving Howard Cameron deny that the latter has tendered his resignation. Mr. Cameron has announced that after his long service, he is contemplating resigning.——Dr. John L. Chabot, M. P., for the city of Ottawa, was a passenger on the torpedoed *Lusitania*, and so far no report has been received of his survival.——Major Thomas Bedford Richardson, Toronto, who has recovered from a prolonged illness dating from September last, has taken up his military duties and has been placed in charge of the hospital at Exhibition Camp, Toronto.——Dr. W. J. Gibson, Belleville, Ont., is said to be seriously ill.——Dr. William Gunn, Clinton, Ont., has gone on a trip to the Panama-Pacific Exposition.

GENERAL

Climatologists to Meet.—The American Climatological and Clinical Association will hold its thirty-second annual meeting in San Francisco, June 18 and 19, under the presidency of Dr. Henry Sewall, Denver.

Federation Moves.—The Scientific Temperance Federation announces the removal of its headquarters and library and also the editorial department of the *Scientific Temperance Journal*, to 36 Bromfield Street, Boston, Mass.

Tuberculosis Foes to Meet in Seattle.—The annual meeting of the National Association for the Study and Prevention of Tuberculosis will be held in Seattle, June 14 to 16. Thus far, twenty-one states and the province of British Columbia have signified their intention of sending delegates.

Mid-West Specialists Hold Meeting.—The Mid-West Academy of Ophthalmology and Oto-Laryngology held its first semi-annual meeting in Joplin, Mo., May 24, under the presidency of Dr. John D. Pifer, Joplin. President and Mrs. Pifer entertained the members at dinner in the evening of May 24.

American Gastro-Enterological Association.—At the executive session, the following officers were elected for the ensuing year: president, Dr. Charles G. Stockton, Buffalo; first vice-president, Dr. William J. Mayo, Rochester, Minn.; second vice-president, Dr. Ludwig W. Kast, New York City; secretary and treasurer, Dr. Franklin W. White, Boston.

New Officers for Neurologists.—At the annual meeting of the American Neurological Association held in New York City, May 13 to 15, the following officers were elected: president, Dr. Llewellys F. Barker, Baltimore; vice-presidents, Drs. Herman H. Hoppe, Cincinnati, and John J. Thomas, Boston, and secretary-treasurer, Dr. Alfred Reginald Allen, Philadelphia.

Immunologists Hold Meeting.—The second annual meeting of the American Association of Immunologists was held in the New Willard Hotel, May 10, and the following officers were elected: president, Dr. James W. Jobling, Nashville, Tenn.; vice-president, Dr. George P. Sanborn, Boston; secretary, Dr. Martin J. Synnott, Montclair, N. J.; and councilor, Dr. John A. Kolmer, Philadelphia.

Medical Milk Commissions to Meet.—The ninth annual conference of the American Association of Medical Milk Commissions will be held in San Francisco, June 17 to 19, under the presidency of Dr. Thomas C. McCleave, Berkeley, Cal. The headquarters will be at the Hotel Bellevue and the sessions will be held in the Municipal Auditorium, San Francisco, and the University of California, Berkeley.

Examination of Dentists for Army.—The Surgeon-General of the Army announces that examinations for the appointment of twelve acting dental surgeons will be held at Fort Slocum, N. Y.; Columbus Barracks, Ohio; Jefferson Barracks, Mo.; Fort Logan, Colo, and Fort McDowell, Calif., Oct. 18, 1915. Before October 4, application blanks and full information can be procured by addressing the "Surgeon-General, U. S. Army, Washington, D. C."

Canal Zone Personal.—Dr. Alfred G. Farmer, Gatun, who has been in the service of the Panama Canal since August, 1905, has resigned, to take effect May 31, and will return with his family to the United States. Dr. Farmer has served in both the Ancon and Colon hospitals, as district physician at Corozal and Gatun, and during the last year has been chief of the medical service of the Colon Hospital.——Dr. Edward P. Beverly has reentered the Canal service and has been assigned to duty as chief of the medical service of the Colon Hospital.

Southern Sociologists Hold Meeting.—At the annual meeting of the Southern Sociologic Congress in Houston, May 10, Dr. Oscar Dowling, New Orleans, was elected first vice-president, and Dr. J. W. Dillard, Lynchburg, Va., a member of the executive committee; and the following committee on medical profession and health was selected: chairman, Dr. Watson S. Rankin, Sanatorium, N. C.; secretary, Dr. Lewis B. McBrayer, Asheville, N. C.; and Dr. Powhatan S. Schenck, Norfolk, Va.; Surgeon Rudolph H. Von Ezdorf, U. S. P. H. S., New Orleans; Dr. Khleber H. Beall, Fort Worth, Tex.; Dr. Charles W. Garrison, Little Rock, Ark., and Miss Mary Gearing, Austin, Tex.

Medico-Psychological Association Annual Election.—The seventy-first annual meeting of the American Medico-Psychological Association was held in Old Point Comfort, Va., May 11 and 12, under the presidency of Dr. Samuel E. Smith, East Haven, Ind. The following officers were elected: president, Dr. Edward N. Brush, Towson, Md.; vice-president, Dr. Charles G. Wagner, Binghamton, N. Y.; secretary-treasurer, Dr. Henry C. Eyman, Massillon, Ohio, and executive council, Drs. Samuel E. Smith, East Haven, Ind.; Charles P. Bancroft, Concord, N. H.; Arthur P. Herring, Baltimore, and James M. Forster, Toronto, Ont. New Orleans was selected as the next place of meeting.

Internists Elect Officers.—The annual meeting of the Association of American Physicians was held in Washington, D. C., May 11 to 13, and the following officers were elected: president, Dr. Henry Sewall, Denver, Colo.; vice-president, Dr. George Dock, St. Louis; secretary, Dr. George M. Kober, Washington, D. C.; recorder, Dr. Thomas McRae; treasurer, Dr. J. P. Crozer Griffith, Philadelphia; member of the executive committee of the Congress of American Physicians and Surgeons, Dr. Theodore C. Janeway, Baltimore; and alternate representative, Dr. Richard P. Strong, Boston. The thirtieth anniversary dinner of the Association was held May 12, at which Dr. George M. Kober presided.

Pennsylvania Optometry Bill Vetoed.—The Pennsylvania Legislature recently passed a bill providing for a separate board of examiners for "optometrists" which Governor Brumbough promptly vetoed. In his veto message the governor said: "This board is created in a way that is contrary to all precedent. To limit the executive in his appointments to a professional body to whom is entrusted the conservation of human vision by compelling and directing him to appoint only those selected by the executive committee of a society that has no obligation or responsibility to the people, and a society whose members are in no legal way related to the people at large is contrary to the policy of law. Only members of said society would be eligible to place on the board, notwithstanding the fact that there may now be and in the future there may arise other societies whose functions it is or may be with equal competence to administer to the human eye. In the formation of other state boards the executive is not so limited and no reason has been given me why this limitation should be made. The judgment and the discretion of the executive cannot be delegated to legally irresponsible bodies. This restriction is fundamentally wrong.

"There is no convincing reason why those practitioners should not voluntarily place themselves under the existing licensing body of the commonwealth. . . . The standards of professional service in this commonwealth are and have been high. We are a center of professional services of the most commendable standards. These standards must be safeguarded and exalted. No official act of the commonwealth should in any way lessen the standards of admission to a professional career in this commonwealth nor the standards of professional training to fit for technical service. The human eye is priceless. The care and treatment is a sacred service. The sanction of the state, which is the sanction of the people, cannot be lightly bestowed."

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's Hospital, New York City, $3,000 for a bed for the use of Grace Church, by the will of Miss Adelaide Hamilton.

St. Francis' and St. Mark's hospitals, New York City, each $500 by the will of Xavier Steultzle.

American Theatrical Hospital, Chicago, $7,000, the proceeds of a benefit performance, May 9.

Harvard Medical School, $10,000 for the endowment of a scholarship; Instructive District Nurses Association, Boston, $24,000, to support a nurse under the direction of the Boston Lying-In Hospital by the will of Fannie Bartlett, Boston.

Seton Hospital for Consumptives, New York City, $26,787, Service for the Relief of Incurable Cancer; St. Agnes' Hospital and Misercordia Hospital, each $5,000 by the will of Catherine Reilly, New York City.

Presbyterian Hospital, New York City, one-half of the residuary estate of $137,244, on the death of his wife, by the will of Frederic Baker, New York.

Hospital of the Protestant Episcopal Church, Philadelphia, $10,000; Pennsylvania Hospital, $5,000; Protestant Episcopal Home for Consumptives, $5,000; Christ's Church Hospital, Philadelphia, $10,000, on the death of her sister-in-law, by the will of Sally Robert Smith.

University Hospital, Philadelphia, $5,000, for the endowment of a free bed to be known as the Dr. John Neill bed in memory of her father, by the will of Patty D. Neill.

Home for Crippled Children, $2,000, by the will of Emma Paul.

St. Louis University School of Medicine, the estate of James Campbell, valued at from $6,000,000 to $10,000,000, subject to the life tenure of his wife and daughter.

Miami Valley and St. Elizabeth's hospitals, Dayton, Ohio, each $5,000, for the establishment of free clinics for those suffering from ailments of the eye, ear, nose and throat, by the will of Mrs. Mary B. Greene.

Johns Hopkins Hospital, Baltimore, $16,500, for the establishment of a new department for the treatment of contagious diseases, donation from John D. Rockefeller, Jr.

Presbyterian Hospital, Manhattan, $20,000; St. Vincent's Hospital, Manhattan, $10,000; Hospital Guild of the New York Medical Hospital and College, Manhattan, $10,000; Bellevue Hospital, Manhattan, $10,000; New York Ophthalmic Institute, Manhattan, by the will of William Washington Cole.

Miami Valley Hospital, Dayton, Ohio, $1,000, by the will of Dr. Colby.

Indiana University, Bloomington, a donation of $100,000, to be used in scientific research, from Dr. Luther D. Waterman, Indianapolis.

FOREIGN

Place de Curie.—The name of Curie, in honor of the discoverer of radium, has been given to a small park formed by the tearing down of the old rue Dauphine in Paris.

Edinger's Sixtieth Birthday.—A number of German and foreign neurologic journals dedicated their current issue to Professor Edinger of Frankfurt in honor of his sixtieth birthday, April 13. Several articles, also, in nonspecialist medical journals are being dedicated to him.

Vaccination Required of Matriculants.—Some of the universities and colleges in Austria are now requiring of applicants a certificate of vaccination since Jan. 1, 1910. Up to May 3 there had been 1,173 cases of smallpox in Vienna since the beginning of the war, with 252 deaths.

Reappearance of More French Exchanges.—The *Archives des Maladies du Coeur*, the *Journal d'Urologie*, and *Annales de Gynécologie et d'Obstétrique* have resumed publication, each saying that the missing numbers for 1914 will be made up in the course of the current year to complete the volume to which the subscribers are entitled.

Maternity Hospitals for Cuba.—The president of Cuba has signed a law providing $400,000 for the erection of six maternity hospitals, one in each province of the island. Of this sum, $100,000 is alloted for the hospital in the province of Habana, and $60,000 each for the hospitals in the other provinces. The money is to be appropriated from the sum accruing to the state from unclaimed lottery prizes.

Campaign Against Alcohol in Austria.—The Austrian *Permanenz-Komitee* for industry, trade and commerce has recently petitioned the government to interfere to check liquor drinking. The petition states that it is unwise to leave the restriction in the hands of local authorities and political interests. The state should take the matter in hand. Among the measures proposed are that the sale of whiskey and brandy should be limited to the hours between 7 and 12 in the morning, and 2 and 3 in the afternoon, and none be sold on Sunday and holidays nor to persons under 16 at any time, nor to persons known to be habitual drunkards. The petition urges strict enforcement of these measures, and the closing of saloons for repeated infractions, also a penalty for persons found drunk in public places, and for saloon keepers selling to those already drunk. The government, while appreciating the necessity for stricter measures against alcohol, is of the opinion that the matter should be left to the local authorities to handle, as they can conform the regulations to local conditions.

WAR NOTES

More Nurses for Austria.—The American Red Cross sent nine additional trained nurses to Austria, via Genoa, Italy, on the steamer *Duca d'Aosta*.

Captives of War in Germany.—According to an official statement, there were up to April 15, 812,803 prisoners of war in Germany. Before any of the Russian captives are detailed for work on farms they are carefully examined for trachoma, etc.

Anonymous Gifts to Red Cross.—The second anonymous gift of $10,000 to the war relief fund of the American Red Cross was announced May 20. The first gift was reported from Philadelphia and the second donation from Massachusetts.

Sheets, Pillow Cases and Towels Needed.—Mr. H. O. Beatty, director-general of the American Relief Clearing House, Paris, writing under date of May 6, states that there is a great need for cotton sheets, pillow cases and towels in connection with war relief work in France.

Exposition of Arrangements for Caring for the Wounded.—Budapest is having an exposition showing the organized care for the wounded and sick in the war and for hygiene and sanitation in general at the front. It is similar to the exhibition recently held at Berlin, and Germany has sent a special exhibit.

Danish Field Hospital in France.—An exchange states that Professors Ehlers is in charge of the Danish hospital unit recently installed in one of the French cities near the seat of war. Tscherning, surgeon in chief of the public hospital of Copenhagen, and two other surgeons, are with him. The unit is planned for twenty-four beds.

Exchange of Severely Wounded Prisoners.—The *Medizinische Klinik* states that 200 severely wounded French soldiers have already reached Constance, ready to be exchanged for severely wounded German soldiers, captured by the French. This is the first consignment of 1,200 wounded prisoners whom the Germans are collecting for exchange.

High Cost of Drugs in Austria.—The wholesale dealers in drugs in Austria have raised their prices by 10 per cent., while the price of the raw materials has gone soaring to 400 per cent. and more. The associated pharmacists are complaining to the authorities that foreign specialties from the enemies' countries are being smuggled into the country.

Reenforcement for Sanitary Commission.—In response to an appeal from Dr. Richard P. Strong, Boston, for further assistance in Serbia to battle with typhus and other epidemic diseases, twenty-seven additional sanitarians sailed for Serbia, May 10, on the steamer *Athinai* for the Piraeus. A large quantity of medical and sanitary supplies was also sent by this steamer.

Appreciation from German Red Cross.—A letter from the president of the German Red Cross, dated in Berlin, April 15, acknowledges the aid of the American people and its appreciation therefor. The letter also acknowledges receipt of four carloads of gifts from the United States and of the ambulances donated by the students of Yale and Harvard universities.

Thanks from Austria.—The American Red Cross has received a letter from Count Traun, president of the Austrian Red Cross, acknowledging the receipt of a shipment of wearing apparel, linen and hospital supplies sent by the *Finland* via Genoa, and also of the four motor ambulances donated by the students of Harvard and Yale universities, which were shipped by the *Cretic*. Two motor ambulances and one-half of the consignment of hospital supplies were forwarded to the Hungarian Red Cross.

Medical Practice at Rome in Case of War.—The Surgical Association of the Province of Rome has joined in the organized arrangements for civilian medical practice throughout the province. All in the arrangement have agreed to assume the practice on request of the members of the profession called to the colors, and to pay to the families of the colleagues they are substituting all the fees received minus a certain small percentage to be determined by the vote of the officers of the association.

Austrian Society to Combat Epidemic Diseases.—An association of medical and laymen has been founded at Vienna to disseminate information among the public as to the nature of epidemic diseases and means of warding them off. The officers include Profs. von Pirquet and O. Stoerk. One of the first measures to be undertaken is to send a mission to Turkey to aid in combating epidemic diseases there, as an important measure to save Austria from invading plagues. A leading merchant is getting up the expedition, assisted by other nonmedical men.

Appalling Conditions in Serbia.—Dr. Richard P. Strong, Boston, chief of the American Sanitary Commission sent to Serbia by the American Red Cross, Rockefeller Foundation and Serbian Relief Committee, to study epidemic diseases, cables that he has just returned from a second inspection trip, that typhus and recurrent fevers are prevalent among all classes, that at Monastir seven physicians are ill with typhus fever, that in many places there are no doctors at all and that although the conditions are very appalling, the work is progressing satisfactorily. A supplementary party of twenty-six sanitary experts and a large quantity of sanitary and medical supplies was sent to Serbia, May 16, on the steamer *Athinai*.

New Quarantine Hospital in Bohemia.—The largest military hospital on the continent is said by the *Wiener klinische Wochenschrift* to be almost completed at Pardubitz. All the wounded and sick soldiers reaching Bohemia have to spend a few days in this hospital, which will have 10,000 beds to begin with. There are 206 pavilions and 125 administration buildings, with railroad station, postoffice, etc. The personnel is to consist of 125 physicians and 750 nurses. The bacteriologic department is in charge of Professor Jedlicka of Prague. There are provisions also for barracks for soldiers. The sick and wounded reaching Bohemia are kept under observation here for a few days and are then transferred to the "clean" part or to one of the pavilions for contagious diseases, as the case develops. It is hoped in this way to keep epidemic diseases out of the country.

Aid for Belgian Physicians.—The following is an extract from a letter from Dr. George W. Crile of Cleveland:

> "When I was in Belgium I received first-hand information from a number of Belgian physicians concerning their plight. They are indeed in dire need and there seems to be no way by which this need can be overcome until their land is restored to them again. The free masonry of the medical profession so binds all medical men together that it seems to me that no appeal to doctors for the aid of their associates in Belgium can be in vain. We should all realize also that no single appeal can satisfy what is going to be a long continued need, that we must give now, later again, and still later and so answer repeated appeals until later conditions may restore to the Belgians the wherewithal to aid themselves."

The report of the treasurer of the committee of American Physicians for the aid of the Belgian profession, for the week ending May 22, 1915, lists the following contributions:

Dr. H. M. Manning, P. A. Surg., U.S.P.H.S., Charleston, S. C.		$ 5.00
Anonymous—K., Toledo, Ohio		5.00
Dr. Dwight G. Kreul, Davenport, Iowa		10.00
M. L. H., Wallum Lake, R. I.		3.00
Knox County Medical Society, *Fredericktown*, Ohio		10.00
The Medical Club of Portland, Portland, Ore.		25.00
Dr. Edward E. Bancroft, Wellesley, Mass.		10.00
Dr. Thomas St. Clair, Latrobe, Pa.		5.00
Dr. Fred T. Murphy, St. Louis Mo.		50.00
Dr. Hermann Grad, New York, N. Y.		10.00
Receipts for the week ending May 22		$ 133.00
Previously reported receipts		6,860.50
Total receipts		$6,993.50
Disbursements for the week ending May 22:		
178 standard boxes of food at $2.28	$ 405.84	
Previously reported disbursements:		
1,625 standard boxes of food at $2.20	$3,575.00	
1,309 standard boxes of food at 2.30	3,010.70	
Total disbursements		6,991.54
Balance		$ 1.96

F. F. Simpson, M.D., Treasurer,
5 Jenkins Arcade Building.

PARIS LETTER

Paris, May 6, 1915.

The War

THE DISCHARGE OF TUBERCULOUS SOLDIERS

Professor Landouzy, dean of the Faculté de médecine de Paris, recently presented to the permanent commission on tuberculosis of the interior department a report on this subject which is rendered very opportune by the war. He first takes up the army statistics showing temporary and final discharges for tuberculosis. The number is considerable already and is sure to be greatly increased by the present concentration of troops. Landouzy believes that the years 1915 and 1916 are going to send out over the country 20,000 tuberculous subjects to scatter the germs of the disease in the regions in which they settle after their discharge. This regrettable state of affairs could be modified by radical measures on the part of the war department. It is indispensable in the first place to eliminate without hesitation every man who is affected with open and hence dangerous tuberculosis. In the next place, tuberculosis should not be, as at present, the disease in which is most seldom applied the form of discharge which permits a temporary or permanent pension. It is believed, to be sure, that tuberculosis is rarely contracted in barracks and that military life is seldom the source of infection. This may be true, but the overexertion inseparable from this life is without doubt the greatest factor in causing the latent disease to become active. Men who contract or develop tuberculosis under such conditions readily become sources of infection in their turn; they are eligible for the form of discharge just mentioned. Today the danger is increased by the fact that the *conseils de revision* have just placed in active service men who were previously discharged because of tuberculosis but who are now found in good condition and may again become a source of danger owing to the uncomfortable life of the trenches and promiscuity which it entails. When these men become unmistakably tuberculous and incapable of taking part in the campaign, as they too frequently do, has the army the right simply to rid itself of them by discharging them and taking no further interest in them? How about those whom these tuberculous patients infect? Landouzy believes that, on the contrary, the army should, to a certain extent and for a limited time, assume the responsibility for such invalids. This would tend to encourage a more rigorous selection at all stages of the service. Men discharged on account of tuberculosis ought not to leave the army without being assured of treatment, education in regard to tuberculosis and assistance. Such measures would tend to protect the general population from carriers of the disease. After this war there will be tuberculous patients who will be war invalids just as much as are the soldiers wounded in battle. The nation owes the same debt of gratitude to both. This debt is all the more sacred so far as the tuberculous patient is concerned because his disease has, to some extent, set him apart as a source of danger to the rest of the population.

THE WAR AND DECEPTIVE ADVERTISEMENTS

I mentioned in a previous letter (The Journal, Oct. 3, 1914, p. 1217) how certain unscrupulous manufacturers in advertising their goods have brazenly imitated the official notices to the public on the subject of hygiene. M. Edmond Bonjean, member of the Conseil supérieur d'hygiène publique de France, has just made a very detailed report to the Société de médecine publique, in regard to deceptive advertisements on subjects of public hygiene. He shows that certain preparations promoted by ingenious publicity and recommended as a sure means of avoiding epidemics are entirely without efficacy. Such advertising may have an injurious effect on the public health, for it leads those who put faith in it to neglect really effective methods, such as immunizing vaccinations or rational disinfections. In a period of national emotion, during a unanimous outburst of patriotism and generosity, says Bonjean, such misleading advertisements easily induce the public to buy these ineffective specialties and send them to the soldiers. Bonjean believes that the law for the repression of frauds might be applied to these dangerous misrepresentations.

AUTOMOBILE SURGICAL AMBULANCE

One of the aims most diligently sought by the military medical service has always been to be able to give soldiers wounded at the front the necessary surgical attention as soon as possible. The first aid posts and the first line ambulances unfortunately cannot perform major surgical operations under satisfactory conditions and the wounded are compelled to be removed to base line hospitals before being operated on; often, therefore, the operation is made too late. Automobile surgical ambulances constitute a great advance in this respect. A real flying surgical hospital, capable of being installed near the front, in which it is possible to operate on a great number of the wounded, can thus be realized. The installation comprises nine 20 horse power automobiles. Six serve for the transportation of the supplies and the staff, one is a radiologic laboratory, another carries the autoclave and the last is the pharmacy. The head surgeon chooses a situation by the side of an ambulance in which he can place his patients after operation. The cars immediately take the places appointed for them. In half an hour a tent is pitched and a surgical pavilion installed. It includes three apartments; a preparation room, a dressing room and an operating room with four tables. The autoclave car is placed at a right angle to the side of the operating room so as to open into it. In front is the radiologic car provided with the latest improvements and permitting precise investigations. The whole is lighted up with electricity furnished by the motors and floored with sheets of aluminum. Everything is capable of being cleansed by having water turned on. The whole constitutes a complete surgical installation which might be envied by many permanently housed institutions. A hundred wounded men can be cared for there during a day. The staff consists of a head surgeon, six assistants, a pharmacist, an administrative officer and twenty-five nurses, of whom ten are medical students. The first of these mobile formations set out for the front May 5. The construction of thirty others is under way.

AID FOR MEN BLINDED IN THE WAR

Devoted teachers are instructing those poor soldiers who have become blind in the ingenious Braille method of writing and reading. The books in Braille characters, however, are very expensive, for the process of printing them is a lengthy and delicate one, and this has limited the output.

A cultivated young blind man has just founded an association the members of which pay a modest annual fee, the sum thus obtained being used to print in Braille characters good books of every kind. As a fitting token of gratitude, the association has been given the name of the Swiss oculist and friend of the blind, Dr. Marc Dufour. Among its active and honorary members the Association Marc Dufour numbers the surgeon C. Roux, Professor Combe and Dr. O. Dufour; it has already an income of about $200 a year. Requests for further information, applications for membership, gifts, etc., may be addressed to the Association Marc Dufour, Chez M. E. G. Carey, avenue Agassiz, 3, Lausanne, Switzerland.

Death of Professor Thoinot

Dr. Léon-Henri Thoinot, professor of legal medicine at the Faculté de médecine de Paris, has just died suddenly of hemorrhage, aged 57. In 1906 he succeeded his master, Professor Brouardel, in the chair of legal medicine. He was a physician of the Laennec Hospital and since the outbreak of the war had been head of the contagious disease service at the military hospital of Val-de-Grâce. His studies had been especially on the subjects of hygiene, sanitation and disinfection. He had made numerous investigations on epidemics of typhoid in miliary fever and diphtheria. He was highly esteemed as an expert in judicial circles.

BERLIN LETTER

Berlin, April 20, 1915.

Death of Löffler

April 9, the professor of bacteriology, Frederick Löffler, died at the age of 62. Immediately after the outbreak of the war he departed to the battle front and served as advisory hygienist to one of the army corps, performing his duties with great earnestness. In November, following an attack of severe intestinal trouble, he was compelled to return home. An operation was deemed necessary, and Professor Bier discovered the presence of a pancreatic carcinoma.

Löffler was born June 24, 1852, at Frankfurt-on-the-Oder, where his father, who subsequently was director of the Pépinière in Berlin and a distinguished military surgeon, was serving as regimental surgeon. After a short period of study in Wurzburg, Löffler entered the Pépinière, which is today the Kaiser-Wilhelms Academy, and after his graduation became a military surgeon in Hannover. Later he served in the same capacity in Potsdam, and in 1879 was appointed to the state sanitary department, working chiefly in the chemical and hygienic laboratory under Sell and Wolffhügel. In 1880, when Robert Koch was appointed director of the national health department, he asked Löffler to enter his laboratory and Löffler had a large share in Koch's work on infection and sanitation. Löffler studied particularly questions of immunity. In 1881 he discovered a mouse bacillus against which, after several injections, he was able to immunize rabbits. After much study on the causes of nasal infections, he discovered the diphtheria bacillus, and for this work he obtained a world-wide reputation.

In 1884 he left this service and became a member of the staff of the Kaiser-Wilhelms Academy, where he continued his investigations. He was then offered the position of director of the chemical hygienic laboratory in the state military service. After he was established as a teacher in hygiene, in 1886, he was called as professor to Giessen and Greifswald in 1888. He decided on the latter university, where he worked until 1913, when he was called to succeed Gaffky as director of the Robert Koch Institute for Infectious Diseases in Berlin. In Greifswald, Löffler devoted himself chiefly to the infectious diseases of animals, and discovered various facts concerning methods of prevention of epidemics. He worked on the prevention of foot and mouth disease, and outlined a method of immunization, which was tested on some animals on a small island in Greifswald Bay, in order to prevent a wider dissemination of the disease. Up to the time of his death, Löffler worked to make his method less costly, as the high price of the immunizing serum prevented its general adoption. Löffler also discovered the causes of the red murrain of pigs and other hog diseases.

Löffler's name is one which is today known throughout the world for his scientific discoveries, of which those mentioned form but a small part.

Congress of Military Surgeons in Brussels

At the suggestion of the chiefs of the field hospitals, a congress of the German military surgeons was held at Brussels in place of the meeting of the German Surgical Society usually held in Berlin; about 1,200 surgeons assembled from all the battlefields, April 1, 1915. Papers were read by prominent surgeons, but for sundry reasons their discussion had to be omitted.

TREATMENT OF HEMORRHAGE

The first paper by Generalarzt Garrè was on the handling of hemorrhage both at the front and later. The stopping of bleeding is one of the most important tasks of the field surgeon. When only the usual tampons and constrictors are used, there may still be enough bleeding from some vessels to result in death. Garrè recommended as the most accurate method of controlling hemorrhage the clamping of bleeders with forceps that are left in place until the dressing is changed. He also spoke of the use of transfusion with physiologic salt solution in cases in which the loss of blood had been great, and stated that stimulus by camphor, caffein, etc., was often more efficacious in impending cardiac failure. Early operation was also advised for skull injuries and for abdominal wounds in which there was danger of internal hemorrhage or injury to stomach or intestines. The earlier the operation in these cases, the better is the prognosis. The necessity for early relief under unfavorable conditions of wounds of the lower urinary apparatus makes the use of the methods used in time of peace impossible and resort to bladder puncture necessary. Every bullet wound is at first, in all probability, not infected, but every grenade wound is; 83 per cent. of all Garrè's especially severe wound infections were due to grenades. This is natural when one considers that these bombs burst on the ground and so carry into the wound dirt as well as fragments of infected clothing. Garrè believes that all such wounds should be thoroughly explored and cleaned out with the gloved hand in the field hospital (the advisability of this is questioned by other speakers). In wounds of the extremity, the speaker preferred conservative handling to early operation.

Generaloberarzt Friedrich of Königsberg spoke of his medical experiences and of the terrible condition of affairs that is arising on the Eastern Russian battle front. He also recommended the clamping of bleeders in preference to the use of constriction and tampons.

TREATMENT OF TETANUS AND GAS GANGRENE

The treatment of tetanus and gas bacillus infections was discussed by Generalarzt Kümmel of Hamburg. In the Crimean War, tetanus occurred in 1.5 per cent. of cases; in the American Civil War, in 2.5 per cent.; in the Franco-Prussian, in 3.5 per cent., and in the present war in 6.5 per cent. of cases. This shows how thoroughly the French soil is impregnated with the organism causing this disease. The early recognition of this disease is of greatest importance as it is much more difficult to cure when it is fully developed. Here again, and for the reasons mentioned above, the grenade wounds are the most dangerous. The sooner after the injury the symptoms appear, the worse is the prognosis in spite of the tetanus antitoxin. A combination of antitoxin with salvarsan has been advised, but Kümmel believes that magnesium sulphate is of greater value; the use of narcotics and the continuous water bath must also be considered. The speaker and many other observers recommend the use of a prophylactic dose of antitoxin, especially as little as 20 units will almost certainly suffice to ward off the disease. A most serious infection for which there is a specific cause is the gas bacillus infection. Its rapid course makes early energetic treatment necessary. A patient who is suspected of having such an infection should be carefully examined every two hours, and as soon as the diagnosis is established, the part must be radically opened up; a small incision in the skin and superficial fascia does not suffice, free incision down into the muscles being necessary. According to the work of Professor Franz, toxins are present in the blood even when there is no bacteremia.

TREATMENT OF SKULL INJURIES

Generalarzt Tilmann of Cologne spoke on skull injuries. In scarcely any type of wound is so great a variety of symptoms found as in skull injuries. While penetrating wounds of the skull often result in an early death, glancing wounds are almost as dangerous because of the more extensive injury to the brain that may be present. In penetrating wounds, the damaged brain tissue, etc., comes out of the larger wound of exit of the bullet; how much the brain is damaged depends on whether a fragment of bone is driven into it and on whether any vital centers are injured. The paralyses, etc., that are often present at first may disappear in a few days. When the wounds are first examined in the field where facilities for aseptic operating are not present, conservative treatment is advised; here only the stopping of hemorrhage and the removal of splinters of bone must be considered. Piercing wounds are operated on only after the bullet has been located by means of roentgenography. In diagnosing a meningitis, which often shows itself on the first day, a spinal puncture is often of great assistance. A more frequent form of infection following skull wounds is encephalitis, only the serous form of which is curable. Brain abscess is a condition both difficult to diagnose and to treat.

TREATMENT OF CHEST WOUNDS

That chest wounds are not so dangerous as might be expected has been clearly shown in the countless cases in the present war. Many cases of bullet wounds of the lungs not complicated by injury to the ribs or the larger pulmonary vessels heal rapidly. Bleeding into the pleural cavity from small arteries is, as Oberstabsarzt Sauerbruch of Zurich pointed out, rather a rare occurrence, and little blood is generally lost in this way. Much the most serious wounds are those produced by grenades. In summing up these cases, delayed hemorrhage and the rise in temperature due to secondary infection must be considered. The germs that escape into the pleural cavity with the injury to the lung find in the clotted blood an excellent culture medium. Simple drainage of the pleural cavity is generally all that is necessary in these cases, though at times it is necessary to operate on the lung itself. Those wounded through the lungs must be kept absolutely quiet. Generaloberarzt Borchard of Posen pointed out that a prolonged compression of the lung may be dangerous, especially when it is accompanied by thickening; when this is feared, after a suitable interval he makes an incision to permit the escape of the fluid and so relieve the lung.

TREATMENT OF PENETRATING WOUNDS OF THE ABDOMEN

In his discussion on penetrating wounds of the abdomen, Generalarzt Körte of Berlin cited many cases. He demonstrated that in this line of work the methods used in times of peace were not practicable, because such wounds are encountered rarely in time of peace and because of the complications presenting themselves in time of war, and on account of the difficulty of transportation. The prognosis in those cases which come up for treatment more than twelve hours after being wounded is bad. When the battle line is in motion, this delay in getting the wounded to a place where they can be cared for is more apt to happen than when the troops are intrenched and have their regularly appointed field hospitals in which it is possible to perform complicated operations. In spite of the great penetrating power of the bullets, piercing of the abdomen without injury to the intestines is rare, though it does occur. In a large series of penetrating wounds of the abdomen, Körte had a mortality of 60 per cent., which would have been even larger if the patients who did not live to get to the rear had been included. Internal hemorrhage and the almost certain injury to the viscera make early surgical treatment the safest method.

Oberstabsarzt Schmieden of Halle stated that the expectant treatment of these cases was all right in theory, but was not possible in time of war, as the necessary conditions such as absolute quiet could not be obtained in time of war. He took the stand that every patient with abdominal injury coming to the skilled surgeon less than twelve hours after being injured should be operated on at once; thus the exact nature of the damage may be ascertained, and if only the liver is injured, the hemorrhage may be stopped, or if the other viscera are injured, whatever is needed may be done. Also experience shows that while the percentage of cases of injury to the stomach or intestines is small, it is even smaller if operation is not performed early. Furthermore, the late complications of pregnancy, such as abscess, etc., which are often hard to diagnose, make the mortality even higher. He also stated the mortality was lower in those soldiers who, being in a dangerous place, were on short rations, had an empty gastro-intestinal canal and so were better prepared for intestinal wounds. Generaloberarzt Friedrich of Königsberg believed that wounds of the small intestine are more dangerous than those of the stomach, large intestine or liver. Generalarzt Rehn of Frankfort-on-the-Main made the same observation.

WOUNDS OF THE EXTREMITIES

Generalarzt Payr of Leipzig and Stabsarzt Goldammer treated the voluminous subject of wounds of the extremities. The great economic significance of this class of wounds makes it necessary to treat them with the greatest care. Here again grenade wounds are found to be the most severe, shrapnel next and bullet wounds least. With grenade wounds, free incision with complete removal of all dirt and pieces of clothing, splinters of bone, etc., is necessary. In spite of this, there is nearly always more or less infection which sometimes gives rise to a septicemia and sometimes to osteomyelitis. In all cases, a very firm dressing is contraindicated, and immobilization is of greatest importance, especially in joint wounds. This keeps the limb quiet and permits the best drainage of the wound. The speaker stated that plaster casts were of value, especially in cases that could not be under constant observation. The use of manufactured splints is possible only in hospitals, in which they are found very convenient, as Professors Rehn, von Eiselsberg and others said.

Marinegeneralarzt Bier of Berlin spoke on the surgery of blood vessels and aneurysms.

The establishment of numerous Roentgen-ray outfits was decided on at the meeting.

Personal

Prof. Carl Fraenkel has resigned his position as chief of the Institute of Hygiene at Halle, on account of his health. On the occasion of his baptism a few years ago (undoubtedly to favor the prospects of his son, an officer in the army), he changed his name to Fraenken. He had a cerebral hemorrhage ten years ago, although he was only 42 years old at the time. He recuperated completely from that attack, so that he was able to resume his teaching and research work. Fraenkel was one of Robert Koch's most gifted pupils, and has accomplished much in various fields of bacteriology and hygiene.

The seventieh birthday of Prof. Friedrich Merkel, director of the Institute of Anatomy at Göttingen, was celebrated April 5. He followed the anatomist Henle in this position in 1885. Among the manuals he has published, the best known are his revision of Henle's "Grundriss der Anatomie" and the "Handbuch der topographischen Anatomie."

The director of the Institute of Pharmacology at Halle, Professor Harnack, died April 24. Like his brother, the theologist of Berlin, he was born at Dorpat in Russia. He studied under Schmiedeberg, the Strassburg pharmacologist, and was called to Halle in 1889 as regular professor. He published a revision of Buchheim's manual of materia medica, the "Lehrbuch der Arzneimittellehre," and wrote for physicians a work embracing the principal facts of chemistry, "Haupttatsachen der Chemie," and has done research work in various fields of his specialty. He conducted a campaign against homeopathy, his articles appearing in the *Deutsche medizinische Wochenschrift*.

Professor Roentgen of Munich reached his seventieth milestone March 27, and to honor the occasion the kaiser presented him with the iron cross. The message of congratulations sent him by the kaiser at the same time said: "The German nation cannot be grateful enough to the discoverer of the rays for whom they are named. The many advantages from the use of the rays are being rendered apparent by the war more than ever before"—*Die segensreiche Verwendung der Strahlen lässt sie gerade jetzt im Kriege ausserordentlich schätzen.*

LONDON LETTER

London, May 14, 1915.

Death of Sir William Gowers

Sir William Gowers, M.D., F.R.C.P., F.R.S., the neurologist, has died at his residence in London. He had a brilliant career as a student, and graduated with the degree of M.D. from the University of London, in 1870, with a gold medal. At an early period he interested himself in nervous diseases, and was appointed to the famous Hospital for the Paralysed and Epileptic, Queen's Square, which may be considered the home of British neurology. He formed one of the brilliant galaxy which included Hughlings Jackson, Ferrier and Bastian, who were the founders of neurology in this country. In 1879 he delivered the Goulstonian Lectures and took for his subject epilepsy, to which his contribution was epoch making. He published a book on "The Diagnosis of Diseases of the Spinal Cord," which at once became a classic. For the first time he showed the intimate relation between the anatomy and the symptomatology of disease of the spinal cord. In 1885 appeared his "Diagnosis of Disease of the Brain." The clinical and pathologic observations of Hughlings Jackson and the experimental work of Fritsch, Hitzig and Ferrier had completely altered the conceptions of cerebral physiology and functions, and Gower's acute mind readily grasped the significance of their observations. He laid down principles and rules which at the present day are perhaps a little extended but scarcely in any way altered. Finally appeared his crowning work, the "Manual of Diseases of the Nervous System." His clinics were attended by physicians from all over the world interested in neurology, and he was considered easily the greatest diagnostician of the day in diseases of the nervous system.

Sickness Benefit Claims Under the Insurance Act

As pointed out in previous letters to The Journal, the insurance act has shown in the working several defects due to its socialistic nature. A committee appointed by the government has issued a report on the question whether the claims made on the funds, either of societies in general or of societies of particular types, are in excess of the claims which under a proper system of administration should have been made on and allowed by them. The committee finds little, if any, evidence of fraud on the part of insured persons, or of deliberate malingering, but considerable evidence of a tendency to take the utmost advantage of the benefits under the act. Taking women, as a whole, experience shows that sufficient provision has not been made for sickness benefit granted to them; that is, either the amount paid as premium is insufficient or the amount of the policy money is too great, and this applies both to single and to married women. In the case of both sexes great difficulty is caused by a doubt as to the meaning of the criterion of incapacity set up under the act, and the committee recommends that the conditions of sickness benefit should be more precisely defined. A new benefit is recommended to be paid to a pregnant woman, in respect to the last four weeks of pregnancy, whether she is incapacitated or not. It is also recommended that payment should be made to a pregnant woman who is incapacitated from following her occupation in the month previous to the last month, whether she is incapacitated by pregnancy alone or by pregnancy accompanied by some other condition.

The War

THE EVACUATION OF THE WOUNDED

An account of the exact method of dealing with the wounded may be of interest. The medical organization in the field consists at the front of two kinds of formations, those of "armies" and those of "divisions." The former are under a director of medical services who, while responsible for the working of all units and branches of the medical service within his army, has under his direct control the large clearing stations established within easy reach of the railway, the motor ambulance convoys, and all sanitary arrangements in the particular army area. The divisional formations are under the assistant director of medical services of the division, who controls the field ambulances, dressing stations, aid posts and sanitary sections in the divisional area. Take the case of a man struck by a bullet while advancing, and left lying in the open under a hail of shrapnel bullets, which are striking the ground all round. From this hazardous position he is rescued by two stretcher bearers who, choosing their moment, rush across, pick him up and carry him back to the shelter of a trench. These bearers may either be from his own unit, sixteen men of which, in the case of an infantry battalion, have been trained in the first aid and stretcher drill, or they may be men of the Army Medical Corps belonging to a bearer subdivision of a field ambulance. They will take him to his "regimental aid post," probably situated in a dug-out, in a cellar, or in some sheltered spot giving cover from fire, where he will receive first aid from the army surgeon attached to the battalion. From this he will be conveyed either on a stretcher or, if circumstances permit and a road is handy, in a horsed ambulance wagon to the nearest dressing station.

As soon as he is placed in the ambulance wagon, he passes out of regimental care into the charge of one of the formations of a division known as "divisional field ambulances." Such an ambulance is composed of three sections, each consisting of a bearer subdivision and a tent subdivision. The former are organized for the purpose of collecting the wounded, while the latter form dressing stations. The advanced dressing stations are pushed forward as close as possible to the front, and are situated in houses alongside roads so as to facilitate conveyance to and fro. On the arrival of the patient at one of these, his wound is carefully attended to, and he is injected with antitetanic serum. He is then carried by a motor or horsed wagon belonging to a divisional field ambulance to one of the larger dressing stations, which has been opened possibly in a school, a convent or a church in some town or large village situated further to the rear, where he is given food. Here the wounded are sorted according to the nature of their injuries, and prepared for transport to the casualty clearing station on motor ambulance wagons. They thus pass out of the hands of the division into the formations under direct control of the army.

The casualty clearing stations are generally situated at the railheads, so that patients can be carried direct from them to the ambulance trains. They are not hospitals in the true sense of the word; but a proportion of serious cases, such as those of certain kinds of injury to the head or abdomen, which cannot be moved without danger, may be retained in them for a considerable time. Equipped and staffed to deal normally with 200 patients, they have a sufficiently elastic organization to be able if necessary to cope with much larger numbers during the progress of a battle, and special arrangements are made for temporarily augmenting the staff when severe pressure is expected. Here the patient will for the first time experience the luxury of being tended by nursing sisters and of lying on a bed. The length of his stay will depend on the railway facilities; but as a rule it will not be more than a few hours before he is placed on an ambulance train. Once on board the train, he leaves what is known as the "collecting zone," and enters the "evacuating zone," and at the same time passes out of the charge of the medical authorities of the army into that of the line of communications.

On arrival at a base, the wounded man is again carried in a motor ambulance wagon to a fully equipped permanent hospital. These hospitals are of two kinds, general and stationary, the difference being chiefly in the number of patients accommodated. A third category of hospitals found at the bases is composed of Red Cross or voluntary hospitals. The personnel and equipment of these are provided by the society or subscribers who organized the unit; but each is under the command of an officer of the Army Medical Corps. A great difficulty experienced is that of reconciling the need of seriously wounded men for complete rest with the necessity for avoiding the congestion which would be caused by retaining them at the casualty clearing stations during an action, a time when large numbers of wounded have to be dealt with. Not many can be retained, and yet any movement or jolting such as that caused by a train or motor journey might involve grave risk. A solution of this problem has been found to a limited extent in the use of water transport on the excellent system of canals with which Northern France is supplied. The serious cases of this nature are carried by barge from the clearing stations near the front to the most advanced hospitals on the lines of communication. The barges have been specially converted into hospital craft, having been fitted with operating tables and all the necessary accessories, and each can accommodate forty patients. They are towed by tugs.

Marriages

Francis J. Townsend, M.D., to Miss Anna Rayne, both of Ocean City, Md., at Snow Hill, Md., May 4.

Hugo Oliver Peterson, M.D., to Miss Marie Euphrosyne Dahlstrom, both of Worcester, Mass., May 19.

William French Smith, M.D., to Miss Margaret R. Dawson, both of Somerville, Mass., May 12.

Louis Charles Deane, M.D., to Miss Mabel Short, both of San Francisco, at Los Angeles, May 9.

Clarence H. Bryan, M.D., to Mrs. Ray N. Mathews, both of Chicago, May 15.

Deaths

Nathaniel Eugene Wordin, M.D. Jefferson Medical College, 1875; a member of the Connecticut State Medical Society, American Academy of Medicine and American Public Health Association; for seven years secretary, and in 1905 president of that organization; once president of the Fairfield County and Bridgeport Medical associations; a member of the State Board of Health, from 1890 to 1899; for many years physician to the Bridgeport Hospital and Bridgeport Protestant Orphan Asylum; a veteran of the Civil War; well known as an author and historian; died at his home in Bridgeport, May 10, from cerebral hemorrhage, aged 70.

George Ansley Wilcox, M.D. New York University, New York City, 1871; a Fellow of the American Medical Association and a member of the Southern Medical Association; professor of gynecology in the University of Georgia, Augusta, and formerly professor of materia medica and therapeutics and of obstetrics in the same institution; gynecologist to the Augusta (Ga.) City and Lamar hospitals; one of the most prominent and beloved practitioners of Augusta, and the first to be given the honorary degree of M.D. by the University of Georgia; died at his home in Augusta, May 5, aged 64.

George Cornelius Bailey, M.D. New York University, New York City, 1886; a member of the Connecticut State Medical Society; for many years a member of the board of directors, consulting physician, head of the gynecologic department and president of the staff of St. Francis' Hospital, Hartford, Conn.; a member of the board of school visitors since 1896; died at his home in Hartford, May 10, from pneumonia, aged 50.

James Jackson Purman, M.D. Howard University, Washington, D. C., 1880; a veteran of the Civil War, who was awarded the Congressional Medal of Honor for gallantry on the battlefield of Gettysburg; formerly an attorney of Green County, Pa.; medical director of the Department of the Potomac, G. A. R.; since 1881 a clerk in the pension office; died at his home in Washington, May 10, aged 73.

Samuel G. Kelly, M.D. Northwestern University Medical School, Chicago, 1903; a Fellow of the American Medical Association and American Academy of Ophthalmology and Oto-Laryngology; and eye, ear, nose and throat surgeon for the Missouri, Kansas and Texas Railroad; died at his home in Sedalia, Mo., April 24, from cerebral hemorrhage, aged 34.

Jessie Wheeler, M.D. Womans' Medical College of Pennsylvania, Philadelphia, 1902; formerly a Fellow of the American Medical Association; a member of the Kansas Medical Society; formerly of Sacramento, Cal., but for the last nine years a practitioner of Salina, Kan.; died in St. Barnabas' Hospital, Salina, from malignant disease, aged 40.

Thomas Joseph McLoughlin, M.D. College of Physicians and Surgeons in the City of New York, 1869; a Fellow of the American Medical Association; surgeon to the Jersey City Hospital, and medical director of St. Francis' Hospital, Jersey City; died at his home in Jersey City, May 12, from septic pneumonia, aged 70.

Niles Harrison Shearer, M.D. University of Maryland, Baltimore, 1866; a member of the Medical Society of the State of Pennsylvania and American Academy of Medicine; surgeon of volunteers during the Civil War; a druggist and financier of York, Pa.; died at his home in that city, May 5, aged 73.

John Lloyd Brown, M.D. University of Louisville, Ky., 1885; formerly president of the Menifee County (Ky.) Board of Health, county referee and local surgeon of the Chesapeake and Ohio Railway at Morehead, Ky.; died at his home in Rothwell, Ky., April 13, from cerebral hemorrhage, aged 51.

Edward Clinton Fish, M.D. University of Michigan, Ann Arbor, 1883; a member of the State Medical Society of Wisconsin; for thirty years a practitioner of Mosinee, Wis.; and for twenty-five years justice of the peace; died at his home in Mosinee, May 9, from tubercular meningitis, aged 56.

Nelson G. West, M.D. Jefferson Medical College, 1854; a member of the Medical Society of Virginia and president of the Loudoun County Medical Society; surgeon in the Confederate service during the Civil War; died at his home in Leesburg, Va., May 11, from senile debility, aged 83.

James R. Willis, M.D. Long Island College Hospital, Brooklyn, 1876; formerly secretary of the Vigo County Board of Health and twice coroner of Vigo County, Ind.; once president of the Vigo County Medical Society; died at his home in Terre Haute, Ind., May 4, aged 61.

Jacob R. Brown (license, Indiana, 1897), for more than sixty years a resident of St. Joseph County, Ind.; surgeon of the Twenty-Ninth Indiana Volunteer Infantry during the Civil War; died at the home of his nephew in Crumstown, Ind., May 1, from senile debility, aged 91.

George Nelson Perry, M.D. Howard University, Washington, D. C., 1884; professor of obstetrics and pediatrics in his alma mater; a member of the Medical Society of the District of Columbia; died at his home in Washington, May 10, from heart disease, aged 64.

Charles Edward Fraser, M.D. Bellevue Hospital Medical College, 1871; once superintendent of the State Custodial Asylum, Rome, N. Y., and for two years coroner of Oneida County; died at his home in Lacona, N. Y., May 10, from cerebral hemorrhage, aged 65.

Ollie L. Townsend, M.D. Hospital College of Medicine, Louisville, 1881; a member of the Kentucky State Medical Association and president of the Farmers' Bank of Glensboro, Ky.; died at his home in Lawrenceburg, May 11, from disease of the spleen, aged 55.

Josiah Thomas Scovell, M.D. Rush Medical College, 1867; for ten years professor of science in the Indiana State Normal School and later head of the science department of the Wiley High School, Terre Haute, Ind.; died at his home in that city, May 8, aged 73.

Albert Joseph Roberts, M.D. Harvard Medical School, 1902; a member of the Connecticut State Medical Society; a member of the staff of the Bridgeport (Conn.) Hospital; died in that institution, May 11, from cerebral hemorrhage, aged 40.

Samuel Mardis Hogan, M.D. University of Louisville, Ky., 1873; a member of the Medical Association of the State of Alabama, and the Southern Surgical and Gynecological Association; died at his home in Montgomery, Ala., May 7, aged 77.

William B. Denny, M.D. Meharry Medical College, Nashville, Tenn., 1880; a well-known colored practitioner of Nashville; pastor of the Salem A. M. E. Church; died at his home in Nashville, May 4, from cerebral hemorrhage, aged 63.

Hugh R. Rutledge, M.D. Medical College of the State of South Carolina, Charleston, 1846; a surgeon in the Mexican War; and said to have been the oldest practitioner in Mississippi; died at his home in Greenville, May 6, aged 91.

Henry B. Roberts, M.D. Atlanta (Ga.) Medical College, 1882; representative from Crisp County in the Georgia Legislature and chairman of the County Board of Education; died at his home in Cordele, May 8, from nephritis, aged 63.

Thomas Perkins Smith, M.D. Harvard Medical School, 1880; a Fellow of the American Medical Association; formerly physician of the city and township of Westbrook, Maine; died at his home in Westbrook, May 7, aged 62.

Maximilian Jacoby, M.D. Long Island College Hospital, Brooklyn, 1910; of Chrome, N. J.; died in the Elizabeth (N. J.) General Hospital, April 9, from septicemia, due to Roentgen-ray burns of the finger, aged 32.

John Henry Urich, M.D. Boston University, 1892; assistant in the department of diseases of the skin and later lecturer on diseases of the skin in his alma mater; died at his home in Boston, February 26, aged 53.

James R. Glover (license, years of practice, West Virginia, 1881), formerly of Pennsboro, W. Va.; but for the last year a resident of Cleveland; died at his home in the latter city, March 11, from pneumonia, aged 70.

Horace Morgan Fritz, M.D. Jefferson Medical College, 1879; a member of the Medical Society of the State of Pennsylvania; died at his home in Quincy, May 12, from cerebral hemorrhage, aged 60.

Robert Augustus Stewart, M.D. New York University, New York City, 1878; formerly a member of the town council of Phillipsburg, N. J.; died at his home in that city, May 14, from heart disease, aged 64.

Sherman Edwards, M.D. Rush Medical College, 1893; for fifteen years a practitioner of Oakfield, Wis.; died in his apartments in Milwaukee, Wis., May 2, from tuberculosis, aged 50.

William F. Goldin, M.D. Atlanta (Ga.) Medical College, 1877; formerly representative and state senator from Haralson County, Ga.; died at his home in Draketown, Ga., May 10, aged 65.

Frederick Ira Beard, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1861; one of the oldest practitioners of Clark County, Mo.; died at his home in Kahoka, May 4, aged 74.

Isaac Newton Houston, M.D. Jefferson Medical College, 1880; a member of the West Virginia State Medical Association; died at his home in Moundsville, W. Va., May 3, aged 64.

Franklin Ellis Kelly, M.D. Louisville Medical College, 1895; a member of the Illinois State Medical Society; also a druggist; died at his home in Green Valley, Ill., April 29, aged 59.

James J. Reilly, M.D. University of Minnesota, Minneapolis, 1886; of Milton, N. Dak.; died in the state penitentiary, Bismarck, N. Dak., May 9, from pneumonia, aged 49.

Albert Felix Fuchs, M.D. Rush Medical College, 1882; a physician and druggist of Loyal, Wis.; died at his home in that place, May 5, from disease of the kidney, aged 58.

Jasemin McAlpin, M.D. Woman's Medical College, Baltimore, 1887; of Warren, Pa.; died in the Bradford (Pa.) Hospital, May 11, from intestinal obstruction, aged 50.

John Alphonsus Lee, M.D. College of Physicians and Surgeons, Boston, 1914; of Boston; died in the Framingham (Mass.) Hospital, May 6, from heart disease, aged 28.

Tirey C. Dollens (licensed, Indiana, 1897), formerly a member of the Indiana State Medical Association; died at his home in Trinity Springs, Ind., May 5, aged 71.

William Becker (license Md.); a veteran of the Civil War; and a practitioner since 1869; died at his home in Baltimore, April 25, from pneumonia, aged 70.

James B. Maple, M.D. Missouri Medical College, St. Louis, 1878; a veteran of the Civil War; died at his home in Custar, S. Dak., recently, aged 79.

Charles Neil Shellenberger, M.D. Pulte Medical College, Cincinnati, 1878; died in Colorado Springs, Colo., his home, April 29, from heart disease, aged 58.

John N. Frank, M.D. Washington University, St. Louis, 1869; twice coroner of St. Louis County, Mo.; died at his home in St. Louis, May 3, aged 66.

Thomas Stewart Blake, M.D. Medical College of the State of South Carolina, Charleston, 1849; died at his home in Ninety-Six, S. C., May 4, aged 88.

Samuel Thomas Cubbage, M.D. Jefferson Medical College, 1895; died at his home in Felton, Del., April 1, from pernicious anemia, aged 50.

John Fenton Kinney, M.D. Indiana Eclectic Medical College, Indianapolis, 1882; died at his home in Idaho, O., April 27, aged 63.

Silas W. Darrow, M.D. Homeopathic Hospital College, Cleveland, 1877; died at his home in Brockport, N.Y., May 5, aged 68.

Frederick W. Montgomery, M.D. Druidic University of Maine, Lewiston, 1882; died at his home in Wichita, Kan., May 4, aged 58.

Florestano Bruno, M.D. Chicago College of Medicine and Surgery, 1913; died at his home in Lawrence, Mass., May 1, aged 33.

E. L. Jacobs (license, Ark., 1903); died at the home of his daughter in Harrisburg, Ark., May 2, aged 82.

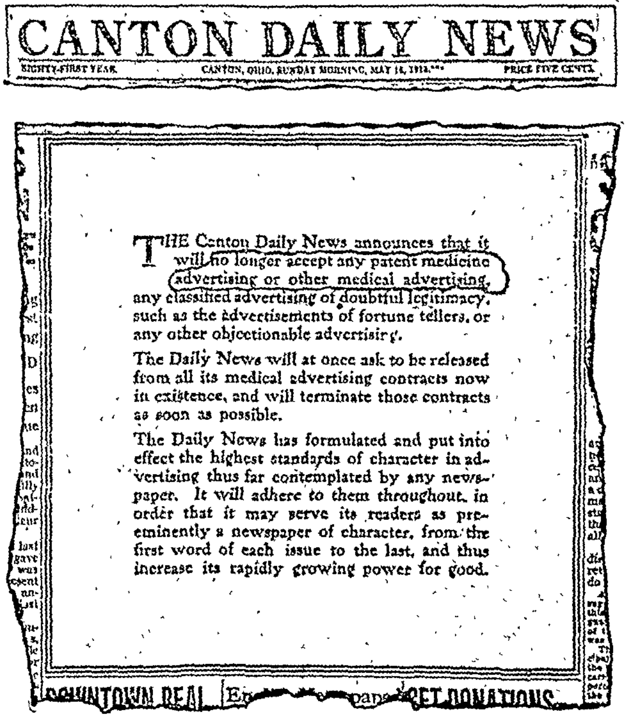
The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

AND STILL THEY COME

Another Daily Paper Rejects All Patent Medicine Advertisements

And now it is the Canton (Ohio) *Daily News!* In its issue of May 15, 1915, this paper announced that it would "no longer accept any patent medicine advertising or other medical advertising" for its pages. It gives among its reasons for taking this step, first, that it seeks to be a newspaper of character and strives for high ideals; second, that it recognizes a growing sentiment that newspapers must be judged as a whole by the standard of their advertising columns as well as by the standard of their news and editorial columns, and third, that it realizes that "advertisements are known by the company they keep" and the *Daily News* wishes its advertisements to be favorably known. Its editorial attitude toward the "patent medicine" business is thus expressed:



CANTON DAILY NEWS

EIGHTY-FIRST YEAR. CANTON, OHIO, SUNDAY MORNING, MAY 16, 1915. PRICE FIVE CENTS.

THE Canton Daily News announces that it will no longer accept any patent medicine advertising or other medical advertising, any classified advertising of doubtful legitimacy, such as the advertisements of fortune tellers, or any other objectionable advertising.

The Daily News will at once ask to be released from all its medical advertising contracts now in existence, and will terminate those contracts as soon as possible.

The Daily News has formulated and put into effect the highest standards of character in advertising thus far contemplated by any newspaper. It will adhere to them throughout, in order that it may serve its readers as preeminently a newspaper of character, from the first word of each issue to the last, and thus increase its rapidly growing power for good.

> "The *Daily News* believes that patent medicines, taken in the bulk, are an evil. Therefore they should not exist. The *News* has never heard any one argue to the contrary and it does not believe there are any arguments to the contrary. It has already received many endorsements of its stand, and no criticism.
>
> "Some patent medicines are the most vicious products of our time. They promise cures for incurable diseases. They cost lives by standing in the way of proper treatment of diseases which are curable by such treatment. They act as substitutes for liquor where liquor is barred. They create drug fiends.
>
> "Such patent medicines as these are vipers that ought to be crushed, must be crushed and WILL be crushed. They prosper largely because they are advertised in newspapers, magazines and other mediums. They are advertised because these mediums make money by advertising them. This is a source of revenue which the *News* is only too glad to forego. The day will come when all newspapers, whether they want to or not, will be compelled to do without this blood money."

The *Daily News* explains that it has, in the past, attempted to censor "patent medicine," advertising because it recognized the evils of many "patent medicines." It was not, however, satisfied with the way such censorship worked.

> "It is hard to know where to draw the line. More, it is IMPOSSIBLE to know where to draw the line. The *News* has reached the conclusion that the only remedy for the patent medicine evil is not regulation but prohibition—the prohibition of ALL patent medicine advertising. Therefore it takes this step."

Again, we of the medical profession should turn our attention to those publications for which we as a profession are directly responsible—the medical journals. Publishers of medical journals were for years in the same position with respect to proprietary medicine advertisements that the publishers of newspapers are today in respect to "patent medicine" advertisements. They were unable to separate the meritorious from the worthless, the useful from the fraudulent. The medical profession, through its own organization, the American Medical Association, created a body of experts—the Council on Pharmacy and Chemistry—which investigates and reports on the proprietary products that are submitted to the medical profession. The medical journal publisher of today, therefore, is in a position intelligently, fairly and scientifically to censor his advertisements of proprietary products. *That in many instances he still refuses to do so* is more than a reflection on the good faith of the individual publisher, it is a reproach on the good judgment of the profession which fails to lift its voice in demanding that such censorship be exercised. Once more it must be said, that, to the discredit of the medical profession, the general standard of medical journal advertising is below the standard of advertising in decent newspapers and immeasurably below the standard of advertising in the average high-class lay magazine.

CAUSE FOR OPTIMISM

A Clean Medical Journal —the South Texas Medical Record

The preceding article comparing the advertising standards of lay publications with those of medical journals may seem pessimistic. Fortunately, there are forces at work in the medical profession that make for optimism. An editorial in the last issue —April, 1915—of the *South Texas Medical Record*, the official organ of the South Texas District Medical Association, is especially significant. While not a large journal, the *South Texas Medical Record* could well stand as an example to medical publications of a much more pretentious character. Its advertising pages are above reproach and the journal is a credit alike to its editors and to those members of the profession whose support make its existence possible. In the editorial referred to, entitled, "Honest Advertising—Let us Cleanse Our Own Linen First," the editor-in-chief, Dr. W. Burton Thorning, says:

> "A recent editorial, entitled 'Honest Advertising,' in a daily newspaper, furnished the occasion for an editorial comment in the January number of the *Southwestern Hospital Reporter*. The latter, while taking the ground that the newspaper was inconsistent in uttering high editorial sentiments and in adjoining columns printing patent medicine advertisements, implied that newspaper men should be allowed some latitude in the matter of accepting advertising, on the plea of being laymen and therefore not expected to possess the same amount of information concerning patent 'dope' that medical men have.
>
> "It would appear to be a fair assumption that a layman, even though a highly educated and able editor of a great newspaper, does not know, and cannot be expected to know, the depth of depravity to which the consumption cure faker and the cancer quack can descend.
>
> "Granting that the newspaper man accepts the advertisements through ignorance of the facts concerning their possibilities for evil, what can be offered in defense of the medical editor who accepts advertising matter equally pernicious in its influence?

"Indeed, it is not so many years since many of the so-called ethical medical journals carried the ads of some of the most notorious quacks this country has ever known.

"Doubtless there are few, if any, who do so at the present time, but, on the other hand, there are only a few who do not advertise unethical institutions, and questionable proprietary medicines. As a matter of fact some of the most widely advertised patent medicines of today were formerly advertised as ethical proprietaries in medical periodicals, the great majority of which are still serving as a sort of preparatory school for advertisements that will presently appear in the lay press.

"What shall be offered in defense of the medical publication which continues to publish the advertising matter of hundreds of proprietaries which the Council on Pharmacy and Chemistry of the American Medical Association has shown to be either generally worthless or an out and out fake?

"Can the medical editor plead ignorance? Hardly. To do so would be to admit utter incapacity. There is only one inference to be drawn; the publication needs the money and is not over particular regarding its source.

"There is a remedy, however, a remedy absolutely certain in its results. If every physician in the United States for a period of three months would positively refuse to receive at his desk a medical journal containing questionable advertising, this blotch on medical journalism could be erased.

"It is true that many of them would sink, never to rise again, but the profession would be better off without those whose existence depends upon 'phoney' advertising. There are, unfortunately, several American journals whose reading pages are well and carefully edited and a credit to medical literature, whose advertising pages carry such undesirable matter that the educated physician can only feel a sense of disgust.

"Such journals could very well succeed on the quality of their reading matter and undoubtedly would increase their circulation enough to more than offset the loss in advertising."

Correspondence

The Defervescence in Typhus Fever

To the Editor:—May I add my experience in corroboration of your statement in a recent Current Comment, on this subject (The Journal, May 15, 1915, p. 1664) that the fever of typhus terminates in a great proportion of cases by lysis and not by crisis? The three typhus epidemics which I observed in Russia have given me sufficient material to support that statement. As a rule, the fever terminates on the twelfth, fourteenth or seventeenth day, the drop in temperature occupying from twelve to seventy-two hours. Even in the rare cases in which the fever ends abruptly, the temperature curve is seldom like the typical curve of lobar pneumonia. It may be worth mentioning that in children in whom the disease is nearly always mild, critical defervescence hardly ever occurs.

G. A. Friedman, M.D., New York.

Effect on Membership of Removal from State

To the Editor:—I enclose a copy of a resolution which was adopted by the Medical Society of the District of Columbia at a recent meeting, with the request that it be published in The Journal of the American Medical Association.

A. L. Hunt, M.D., Corresponding Secretary,
Washington, D. C.

Moved, that the Executive Committee recommends to the Medical Society of the District of Columbia the adoption of the following resolutions, with instructions that copies thereof be sent to the delegates, presidents and secretaries of the various state medical associations; that it be printed in the *Washington Medical Annals;* and that a copy be sent to The Journal of the American Medical Association with request for its publication therein.

Whereas, Section 3, Chapter VIII, of the By-Laws of the American Medical Association provides as follows:

Effect on Membership of Removal to Another State: A member who changes the location at which he practices medicine from the state through whose constituent association he holds membership in the American Medical Association to another state in which there is a constituent association is eligible to membership in the component society of his new location upon the presentation of a transfer card and an official statement that his dues have been paid in full in the society in which he holds membership. He shall forfeit his membership in the American Medical Association one year after such change of location, unless he becomes a member of the constituent association of the state to which he has moved. Provided, however, that if the component society into whose territory such member has moved shall refuse him membership, the member shall be privileged to appeal to the Judicial Council of this Association to determine whether or not he be guilty of any act that warrants the enforcement of the provisions of this section. Pending the decision of such appeal, he shall retain his membership in the American Medical Association through his original state association. And provided, further, that the term "the practice of medicine" throughout these by-laws shall be held to mean the offering of service or counsel for the relief of those suffering from abnormal physical or mental conditions. Provided, that nothing in this section shall be construed as exempting any member of the American Medical Association from compliance with the requirements of the civil laws of the state or district into which he may have been removed.

Be it *Resolved,* That the Medical Society of the District of Columbia is opposed to the foregoing section, for the following reasons:

The section is loosely and clumsily worded, and contains provisions of questionable relevancy or practicability. The proviso relating to appeal to the Judicial Council seems meaningless, as it does not appear what "the provisions of this section" are that are to be enforced, or how they are to be enforced. According to the apparent intent, the operation of the section, if enforceable, could have the effect of compelling local and constituent associations against their will to admit members by transfer from other jurisdictions. This method of admitting members by transfer is not contemplated by the procedure prescribed in the constitution of this society, or doubtless in the constitutions of many other state associations; hence the virtual effect of this section is autocratically to override and nullify in this respect these constitutions without the consent of the local associations, and even without consulting them. The adherence to the general plan of organization of the American Medical Association required of the constituent associations cannot be construed as granting unlimited control over local affairs. Absolute, complete and unrestricted control over admission to its own membership is a fundamental right vital to the autonomy of any organization. That three outsiders, however excellent, members of the Judicial Council, should have the appellate power to dictate to the hundreds of members of a constituent association as to the admission of new members is totally repugnant to the approved American principle of local self government. Their familiarity with local conditions and local spirit makes the members of a local association far better qualified to act in their own way on applicants for membership than any outside tribunal; their decision should be final, and it is not likely that material injustice will be done. Furthermore, if the right of the American Medical Association to encroach on local prerogatives and override local constitutions in one matter is conceded, there is not a limit to the autocratic interference with personal and local independence and privileges to which it or its managers might not attempt to lay claim. For the foregoing reasons the Medical Society of the District of Columbia is not disposed to recognize any authority, jurisdiction or power of interference whether on the part of the American Medical Association or its Judicial Council with respect to the admission of members or any other purely local matter. Therefore, be it

Resolved, That the delegate of this society to the American Medical Association is instructed to offer and promote the adoption of some such substitute as the following for the foregoing Section 3, Chapter VIII of the By-Laws, which should amply meet the requirements of the case.

Removal of Members.—A member of a constituent association removing from the jurisdiction thereof may remain eligible for membership in the American Medical Association for a period of eighteen months following such removal, after which such eligibility shall cease, unless or until it is reestablished by his becoming a member of the constituent association of the jurisdiction in which he is located.

Strychnin Symptoms After Large Doses of Morphin

To the Editor:—That large doses of morphin may produce symptoms resembling those caused by strychnin can be seen not only from the recent experimental work of Hugh McGuigan and E. L. Ross (The Journal, May 1, 1915, p. 1494) but also from the following observations. In the *Philadelphia Medical Journal,* March 21, 1903, I published the following record under the title, "Spinal Symptoms Caused by Acute Morphine Poisoning":

A middle-aged man in one of his usual attacks of rheumatic pain from which he had been a sufferer for several years went to a nearby pharmacy for relief. A mixture containing 3 grains of morphin sulphate was given him. He drank over a half of it at once. Half an hour later he suddenly became pale and fell in a semicomatose state. Some clonic contractions in the upper extremities and trismus made their appearance which, however, did not last long. A vomitive was given him before my arrival. I found him pale, covered with perspiration and unable to walk. When forced to take a few steps, spastic paralysis was evident. The knee-jerks were markedly increased; ankle-clonus and Babinski toe phenomenon were present. Seventeen hours later all symptoms of motor irritability disappeared.

In the *Philadelphia Medical Journal,* March 28, 1903, W. W. Keen, commenting on my communication, reports his own experience with morphin. In 1866, he says, he had a severe attack of insomnia. In desperation one night he took one-quarter grain of morphin and repeated the dose in an hour. He not only did not sleep, but an hour or two later he walked with a spastic gait. When he accidentally struck his knee against an article of furniture in the room in the dark, instantly a spasm closely resembling a strychnia spasm was produced. Alfred Gordon, M.D., Philadelphia.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SERUMS AND VACCINES IN ERYSIPELAS

To the Editor:—What is the consensus of opinion of the medical profession as to the serum treatment of erysipelas. What is the dosage and how often given? Have any bad results occurred? Please sign initials only. E. R. S.

Answer.—Antistreptococcus serum has been used in erysipelas with apparently good results in some cases. But as Kolmer says (Infection, Immunity and Specific Therapy), "with very indifferent results." Erdmann (Reference Handbook of the Medical Sciences, iv, 89) states: "Marmorek's and other antistreptococcus serums have failed. Autogenous and stock vaccines made from erysipelas streptococci demonstrated no efficiency in a series of ninety-five of my cases so treated." The general opinion seems to be that the evidence as to the usefulness of these serums is not convincing. However, Ashurst (Principles and Practice of Surgery) says: "Antistreptococcic serum is harmless and, if possible, should be administered in all severe cases." The treatment by vaccines was inefficient in the hands of Erdmann, but some authors have thought it useful. Maynard Smith (System of Treatment, edited by Latham and English) says: "Its results have been very promising and it is likely to form the most reliable means at our disposal. In severe cases an initial dose of 10 millions of the dead organisms is given. On the following day another dose of 10 millions is administered if there is improvement in clinical manifestation; if not, a smaller dose of 5 millions is given."

The treatment with vaccines must be regarded as still on trial.

LITERATURE ON SCOPOLAMIN

To the Editor:—Please give me information as to the physiologic action and therapeutic indications of scopolamin, and some literature on the subject. Morris Schott, M.D., Cleveland.

Answer.—The following is a list of articles dealing with scopolamin:

Hatcher, Robert A.: Scopolamin and Morphin in Narcosis and in Childbirth, The Journal, Feb. 5, 1910, p. 446; Feb. 12, 1910, p. 516.
Morphin and Hyoscin (Scopolamin) in Labor, Queries and Minor Notes, The Journal, June 7, 1913, p. 1814.
Scopolamin in Obstetrics, Queries and Minor Notes, The Journal, Aug. 31, 1912, p. 758.
Franck: Case of Addiction to Scopomorphin, *München. med. Wchnschr.,* April 2, 1912.
Scopolamin (Hyoscin) and Morphin as an Anesthetic, Therapeutics, The Journal, Dec. 16, 1911, p. 1995.
Langer, H.: Scopolamin Solutions Do Not Keep Well and Should Be Made Fresh, *Therap. Monatsh.,* February, 1912.
Brunner, F.: Be Cautious with Scopolamin, *München. med. Wchnschr.,* Jan. 16, 1912; abstr., The Journal, Feb. 24, 1912, p. 598.
Morphin and Scopolamin, Practical Pharmacology, The Journal, Feb. 13, 1915, p. 588.
Mueller, F. H.: Disadvantages of Use of Scopolamin in Treatment of Morphin Addiction, *Berl. klin. Wchnschr.,* April 21, 1913; abstr., The Journal, May 31, 1913, p. 1748.
Brustlein: Be Cautious with Scopolamin, *Cor.-Bl. f. schweiz. Aerzte,* April 1, 1912.
Zimmermann, R.: Case of Scopolamin Poisoning, *München. med. Wchnschr.,* Feb. 20, 1912.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, July 6. Chairman, Dr. W. H. Sanders, Montgomery.
Alaska: Juneau, July 6. Sec., Dr. Harry C. DeVighne, Juneau.
Arizona: Phoenix, July 6-7. Sec., Dr. John Wix Thomas, Phoenix.
California: San Francisco, June 15-18. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.
Delaware: Dover and Wilmington, June 15-17. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
Florida: Jacksonville, June 15-16. Sec., Dr. E. W. Warren, 102 Front St., Palatka.
Georgia: Atlanta and Augusta, June 2-4. Sec., Dr. C. T. Nolan, Marietta.
Illinois: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.
Iowa: Iowa City, June 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
Kansas: Kansas City, June 8-10. Sec., Dr. H. A. Dykes, Lebanon.
Kentucky: Louisville, June 8-10. Sec., Dr. A. T. McCormack, Bowling Green.
Louisiana: New Orleans, June 3-5. Sec., Dr. E. L. Leckert, 716 Machea Bldg., New Orleans.
Maine: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
Maryland: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.
Maryland: Homeopathic, Baltimore, June 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.
Michigan: Ann Arbor, June 8-10. Sec., *Dr. B. D. Harison, 504* Washington Arcade, Detroit.
Minnesota: Minneapolis, June 1-4. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.
Mississippi: Jackson, June 15-16. Sec., Dr. E. H. Galloway, Jackson.
Missouri: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.
Nebraska: Lincoln, June 10-11. Sec., Dr. H. B. Cummins, Seward.
New Hampshire: Concord, July 6-7. Regent, Mr. H. C. Morrison, Concord.
New Jersey: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.
New York: Albany, Buffalo, New York and Syracuse, June 29-July 2. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.
North Carolina: Greensboro, June 8. Sec., Dr. H. A. Royster, Raleigh.
North Dakota: Grand Forks, July 6-9. Sec., Dr. G. M. *Williamson,* Grand Forks.
Ohio: Columbus, June 8-11. Sec., Dr. George H. Matson, Columbus.
Oregon: Portland, July 5. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.
Pennsylvania: Philadelphia and Pittsburgh, June 1-3. Sec., Dr. Nathan C. Schaeffer, Harrisburg.
Rhode Island: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.
South Carolina: Columbia, June 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
Tennessee: Memphis and Nashville, June 25, 26. Sec., Dr. A. B. De Loach, 426 Scimitar Bldg., Memphis.
Texas: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.
Utah: Salt Lake City, July 5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.
Vermont: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.
Virginia: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.
Washington: Seattle, July 6. Sec., Dr. G. N. Suttner, Baker Bldg., Walla Walla.
Wisconsin: Milwaukee, June 29-30—July 1. Sec., Dr. J. M. Beffel, 3200 Clybourn St., Milwaukee.

Maine March Report

Dr. Frank W. Searle, secretary of the Maine State Board of Registration of Medicine, reports the written examination held at Portland, March 9-10, 1915. The total number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 16, of whom 13 passed and 3 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Medical School of Maine	(1913)	81
College of Physicians and Surgeons, Baltimore	(1911)	76
Maryland Medical College	(1909)	81
College of Physicians and Surgeons, Boston	(1913)	88
Harvard University	(1912) 91; (1913) 80; (1915)	84
Tufts College Medical School	(1911) 79; (1913)	80
New York Homeo. Med. Coll. and Flower Hospital	(1914)	85
University and Bellevue Hospital Medical College	(1906)	77
University of Tennessee	(1912)	91
University of West Tennessee	(1913)	78

FAILED		
Eastern University*	(1913)	65
College of Phys. and Surg., Boston	(1909) 77†; (1912)	69

* This college is officially reported as not recognized by the Maryland State Board of Medical Examiners.

† Conditioned in one subject.

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Boston University	*(1906)*	*Vermont*

Arizona April Report

Dr. John Wix Thomas, secretary of the Arizona Board of Medical Examiners, reports the written examination held at Phoenix, April 6-7, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 3 passed, including 1 osteopath, and 4 failed, including 1 osteopath. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1914)	80.4
University of Vienna, Austria	(1910)	77.8
FAILED		
University of the South	(1897)	45.5
Vanderbilt University	(1914)	73.4
National School of Medicine, Mexico	(1910)	43.6

Book Notices

THE TUBERCULOSIS NURSE. Her Function and Her Qualifications. A Handbook for Practical Workers in the Tuberculosis Campaign. By Ellen N. La Motte, R.N., Graduate of Johns Hopkins Hospital. Introduction by Louis Hamman, M.D., Physician in Charge Phipps Tuberculosis Dispensary, Johns Hopkins University. Cloth. Price, $1.50. Pp. 292. New York: G. P. Putnam's Sons, 1915.

This book deals with the tuberculosis situation in Baltimore. It details the problems that have presented themselves in that city, how they have been solved, and how an effective nursing staff has been built up, first under private and later under municipal control. The situation in other cities and countries is not considered. This, however, in no way detracts from the value of the book. The author believes that only graduates of first-class general hospitals should be employed as visiting tuberculosis nurses, and advises strongly against employing women who have apparently recovered from the disease. In Baltimore the applicant for a position in this service is required to submit to examination by a specialist; a certificate of health from her family physician is not accepted. The hardships and difficulties in the work are considered and the necessity for education of patients and their families. The social and economic aspects of tuberculosis relief work are considered at some length. The author believes that the social service worker has an important place in this work, but calls attention to the fact that some social workers try to do their own and every one else's work as well. "All social workers should learn where to stop—where to transfer the case to some one else better fitted to deal with another phase of it."

TRANSACTIONS OF THE FOURTH INTERNATIONAL CONGRESS ON SCHOOL HYGIENE. Five Volumes. Paper. 1913.

The Fourth International Congress on School Hygiene held at Buffalo, Aug. 25 to 30, 1913, was admittedly one of the most successful of international conferences on this subject. The Transactions fill five large volumes and contain a large amount of valuable material that will be utilized by all those interested in any aspect of the school hygiene field. Specific mention of the many valuable papers presented is impossible on account of their great number. The five volumes form a mine of valuable material that will justify the careful study of all those interested in school hygiene. The program includes practically every phase of school hygiene, so that the teacher, the physician, the school inspector, the local health officer and the school superintendent can all find much material of interest. Paradoxical as it may seem, perhaps the most pertinent criticism that can be made on the Transactions is that they are too complete. Their very bulk is appalling and prevents one from finding many things that would doubtless be of value. While custom has sanctioned the habit of including in transactions of these congresses practically everything that has any connection with the case, there are some of these customs which would be far more honored in the breach than in the observance. For instance, it is difficult to understand why volumes of transactions should contain many pages of names of committees, delegates, exhibitors, etc., why space should be given to such purely conventional utterances as the perfunctory addresses of welcome delivered by mayors and governors and to equally perfunctory responses thereto. What object is there in printing in transactions, issued months after the congress, such transient matters as reports of entertainment, reception and transportation committees, lists of hotels with rates, etc.? The editorial blue pencil, if liberally used, would have reduced the five volumes of Transactions to one or two and would greatly have increased the value of the surviving material. These international congresses are undoubtedly of great value, and the material presented is in the main thoroughly worthy of preservation; but there would be less likelihood of such Transactions reposing undisturbed on library shelves if the enthusiasm of those responsible for the preparation of these Transactions were somewhat tempered by discrimination.

URINARY ANALYSIS AND DIAGNOSIS BY MICROSCOPICAL AND CHEMICAL EXAMINATION. By Louis Heitzmann, M.D. Third Edition. Cloth. Price, $3 net. Pp. 345, with 131 illustrations. New York: William Wood & Co., 1915.

In the present revision, "the aim has again been to increase and improve the first part on chemical examination and to incorporate in it all the simpler methods and tests which have proven of value." With few exceptions the more complicated tests have been omitted. As in the former editions, special emphasis is laid on the microscopic examination and its importance in diagnosis. While there is no question that a careful study of the urinary epithelia may often lead to presumptive, and occasionally to an absolute differential diagnosis, it seems likely that Heitzmann has taken too radical a position regarding the importance of the epithelia in diagnosis. The sections dealing with these points are especially complete and worthy of careful attention by the reader. This well-known book, while not so complete as could be desired with reference to the chemical examination of the urine, is, nevertheless, adequate for all who do not wish to undertake the more detailed special examinations. Its chief value lies in its thorough presentation, both in the text and in the excellent original illustrations, of the microscopic characteristics of the urine and, especially, of the value of such examinations in differential diagnosis.

DIE FÄZES DES MENSCHEN IM NORMALEN UND KRANKHAFTEN ZUSTANDE MIT BESONDERER BERUCKSICHTIGUNG DER KLINISCHEN UNTERSUCHUNGSMETHODEN. Von Prof. Dr. Ad. Schmidt, Geh. Medizinalrat, and Prof. Dr. J. Strasburger, Ordentl. Professor der Inneren Medizin. Fourth Edition. Paper. Price, 22 marks. Pp. 444, with 31 illustrations. Berlin: August Hirschwald, 1915.

Since the appearance of the former edition of this authoritative work, investigation of the feces has become more complex. For this reason the additions to the text and bibliography have been numerous. Especial attention should be directed to the section on the micro-organisms of the feces, as herein may be found a clear discussion of the occurrence and differentiation of the various types of bacteria which are observed in the intestinal tract both in health and disease. The section dealing with the chemical analysis of the feces is also particularly complete, and should lead the worker to a much more complete technic than is usually employed. This work may be recommended to the laboratory worker who has occasion to examine and study the feces, and to the general practitioner who may desire to obtain a better understanding of methods of study, as well as of the proper interpretation of the analytic findings in this much neglected field.

Medicolegal

Making a Public Nuisance of Milk Pasteurization—Criminal Intent

(People vs. Borden's Condensed Milk Co. (N. Y.), 151 N. Y. Supp. 547)

The Supreme Court of New York, Appellate Division, Second Department, affirms a judgment holding the defendant guilty of having committed the crime of maintaining a public nuisance in its method of pasteurizing milk. The court says that the defendant claimed that all the acts or omissions charged against it were merely incidental to the process of "pasteurization," and that therefore its acts or omissions had statutory sanction and could not be considered as constituting a public nuisance in a legal sense. It may be granted at once that the ordinance of the board of health had the force of a statute, for the Greater New York Charter so provides. But this ordinance did not purport to prescribe nor to authorize any detail in the act of "pasteurization," such as was charged against the defendant in this proceeding. It did require "pasteurization" generally, but it is very far-fetched to think that this requirement authorized, much less directed, the making of unnecessary noises in the very early hours of morning, either within or without the defendant's plant, and to the great annoyance of the residents of the neighborhood. The defendant urged further that the judgment was reached by ignoring the necessity of proving a criminal intent on the part of the defendant, and that therefore it was based on a substantial error of law. What is meant by the phrase "criminal intent," within the scope of the definition of the crime of maintaining a public nuisance? It does not mean that one who is charged with the commission of that offense should be shown to have consciously and positively intended to interfere with the comfort and repose of "any considerable number of persons." His criminality is independent of any positive purpose of annoyance. It can arise as well from his very failure to think of anybody but himself, and, generally, public nuisances, whenever and wherever they exist, arise from just such self-concentration. The acts involved here were so continuous and persistent as to indicate on the part of the defendant's employees a complete indifference to the rights of others and, as to the crime now under consideration, to establish a "criminal intent" within the meaning of the law.

Injury to Previously Injured Person—Distinction Between Hypothetical and Other Questions

(Blake vs. City of Bedford (Ia.), 151 N. W. R. 74)

The Supreme Court of Iowa affirms a judgment for $2,750 in favor of the plaintiff, a man about 60 years old, who was injured on a defective sidewalk more than nine months after he had been injured by a fall from a ladder. The court says that the fact that the plaintiff had sustained a prior injury was of course material, but it constituted no defense to this action, if he succeeded in showing to the jury, that, by reason of the defendant's negligence with respect to its sidewalk, he was made to fall, without fault on his part, and thereby received other or additional or increased injury. A physician who was shown to have personally examined and treated the plaintiff for his injuries was asked for his opinion whether a union, bony or fibrous, of the broken bone had taken place prior to the plaintiff's fall on the sidewalk. In this question the witness was asked, among other things, to speak from his examination and observation of the patient. It was urged that the witness should not have been allowed to answer until he had first detailed to the jury all that he had learned or discovered in his examination and treatment of the patient. But such is not the rule. If a witness is testifying purely as an expert, pronouncing an opinion solely on a hypothetical state of facts, then of course it is the right of the opposing party to insist that the question shall disclose all the facts on which the opinion is to be pronounced. But, if the witness be a physician who professes to speak from his personal observation, examination, and treatment, he may properly express an opinion based thereon, it being, of course, the privilege of counsel on the other side, by cross-examination, to test its accuracy and reasonableness.

Information Not Obtained for Purpose of Treatment Is Not Privileged

(Cherpeski vs. Great Northern Railway Co. (Minn.), 150 N. W. R. 1091)

The Supreme Court of Minnesota, in reversing a judgment obtained by the plaintiff for personal injuries, holds that it was error to exclude the testimony of two physicians called as witnesses by the defendant. One of them was a physician and surgeon of the Northwestern Road. The defendant proposed showing that the plaintiff went to him and was examined for the purpose of ascertaining whether he could enter the service of the road. The other physician was the general surgeon of the defendant. The plaintiff, according to the offered proof, went to him to ascertain whether he was physically able to remain in the service of the company. In neither case was curative treatment contemplated. In neither case did the physician obtain information to enable him to prescribe or act for the plaintiff. Objections to the proposed testimony were sustained on the ground that the information sought was privileged. But from the showing made or offered to be made the court thinks it affirmatively appeared that the information obtained by the two physicians was not privileged. At common law communications between physician and patient or information obtained by the physician in treating his patient were not privileged. The privilege comes from the statute.

Injury from Negligently Cutting Through Bandage—Care Required in Public Dispensary

(Volkell vs. Wolf (N. Y.), 151 N. Y. Supp. 918)

The Supreme Court of New York, Appellate Term, First Department, which affirms a judgment in favor of the plaintiff, amount not stated, says that the defendant, a surgeon, operating in a dispensary, inflicted an injury on this infant plaintiff while cutting through a bandage in which the child's broken arm was wrapped. The defendant claimed that, if the bandage had been adjusted properly and in the usual fashion, the patient's hand would have been fastened tightly to the body and in no danger of being cut. He admitted that before cutting he made no examination to ascertain where the hand was, or what was concealed under the point where he applied the shears, claiming that "he had a right to assume that it (the bandage) was properly put on; also that, "I think the whole hand was exposed, but I did not see it; I had the impression that the bandage was outside of the upper part;" also that it was merely good fortune that the infant's hand was not cut off. The hurry of work in a public dispensary does not excuse the lack of ordinary care. The defendant could not assume that the hand was in a safe position, and rely on that, when the fact could be readily ascertained by himself before applying the shears. The finding of negligence was warranted by the evidence.

What Constitutes Removal of Hand at Wrist

(Moore vs. Aetna Life Insurance Co. (Ore.), 146 Pac. R. 151)

The Supreme Court of Oregon affirms a judgment for the plaintiff, where the question was disputed as to whether his hand had been removed at the wrist. The court says that the question was one of extreme nicety, and there is a dearth of decisions covering the exact point, there being no case cited by counsel or discovered by the court involving the construction of a policy exactly identical in its terms with the one on which this action was predicated. This was an action to recover on an accident insurance policy, which provided that the plaintiff should be entitled to recover $1,000 if he should suffer accidental injuries resulting in the "loss of a hand by removal at or above the wrist." The plaintiff was accidentally shot in the hand, necessitating the removal of all the bones of the hand at the wrist except the metacarpal bone of the thumb. From the medical testimony, which was meager, and photographs taken about the time of the trial, it appears that the amputation began at the *inner side of*

the left wrist, removing probably a small portion of the unciform bone, and including in the operation all the metacarpal bones of the four fingers at their articulation with the unciform, os magnum, and trapezoid, respectively. The os magnum, trapezoid, and trapezium were clearly left intact, and the bones of the thumb, while possibly injured by the shot, retained their continuity. The thumb itself was not removed, although the ball of that member was partially destroyed and the ligaments so injured that it was stiff and entirely useless. The medical witness stated that in his opinion it would have been better to have removed what remained of the thumb, so that the plaintiff could have had an artificial hand. There was enough of the flesh of the hand to cover the bones of the wrist, forming what the medical witness termed "a bunch of hardened callus" at the end of the wrist, probably no more than good surgery would require for the protection of the bones of the wrist. The court is of the opinion that the plaintiff was within the true meaning and spirit of the policy. He had a good hand against losing the use of which he desired to insure. If he had been told the intent and meaning of the policy was such that if in case of a necessary amputation the surgeon should leave some useless shred of his hand to be a source of annoyance and inconvenience, and thereby his policy would be practically worthless, does any sane person believe for a moment he would have taken out the policy? The substance of what he sought was insurance against the possible loss of his hand as a useful member of his body. Substantially he lost his hand by removal at the wrist.

Society Proceedings

COMING MEETINGS

American Medical Association, San Francisco, June 21-25.

American Academy of Medicine, San Francisco, June 25-28.
American Climatological and Clin. Association, San Francisco, June 18-19.
American Laryngological Association, Niagara Falls, June 1-3.
American Laryn., Rhin. and Otol. Society, Chicago, June 15-16.
American Ophthalmological Society, New London, Conn., July 6-7.
American Otological Society, Niagara Falls, June 3-4.
American Society of Tropical Medicine, San Francisco, June 14-16.
American Surgical Association, Rochester, Minn., June 9-11.
Arizona Medical Association, Prescott, June 17-18.
Maine Medical Association, Poland Springs, June 9-10.
Massachusetts Medical Society, Boston, June 8-9.
Montana State Medical Association, Bozeman, July 14-15.
Nat'l Assn. for the Study and Prev. of Tuberculosis, Seattle, June 14-16.
Nevada State Medical Association, Reno, June 17-19.
New Jersey Medical Society, Spring Lake, June 22-24.
North Carolina State Medical Society, Greensboro, June 16.
Rhode Island Medical Society, Providence, June 3.
Washington State Medical Association, Tacoma, July 20-22.

AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION

Eighteenth Annual Meeting, held at Baltimore, May 10, 1915

The President, Dr. Joseph C. Bloodgood, in the Chair

Benign Growths of the Stomach

Dr. Seymour Basch, New York: Only the genuine new growths are considered. They include mucous polypi, adenomas, lymphadenomas, myomas, fibromas, lipomas, myxomas, osteomas and cysts. When the mucous membrane is not involved and there is no obstruction from the growth, normal conditions of the gastric secretion should prevail.

DISCUSSION

Dr. Jacob Kaufmann, New York: A patient whom I had occasion to see several times with her physician, a girl, suffered from her fourteenth to her nineteenth year with repeated gastric hemorrhages of very severe type, occurring shortly before menstruation. Roentgenograms made on two occasions showed the characteristic picture of penetrating ulcer of the duodenum. At operation, the duodenum and pyloric part of the stomach were found normal, but fibroma was discovered at its cardiac end. The mucous membrane around it was quite congested, and when the tumor was handled, a profuse hemorrhage was produced. I think we have every reason to pronounce this a true case of menstrual bleeding from the stomach.

Dr. Henry W. Bettmann, Cincinnati: A man, now about 50 years of age, has suffered for fifteen years with pain and hyperacidity of the stomach. Nine years ago, an operation was done, and the whole mucous membrane was found covered with small polyadenomas. We did nothing but sew up the stomach again. He will probably go on for the rest of his life suffering from the same symptoms. The supposed rarity of these cases may be due to the fact that we have failed to put isolated cases of this character on record.

Dr. John A. Lichty, Pittsburgh: I should like to ask Dr. Basch whether he relies largely on the Roentgen ray in making the diagnosis. The slides he has exhibited seem to show a rather large shadow. In cases of small polypi, however, I can hardly see how the Roentgen ray would help.

Dr. Seymour Basch, New York: The Roentgen ray is a distinct advance in the diagnosis of borderline cases. Roentgenograms show not only a distinct shadow defect caused by the penetration of the tumor into the bismuth, but also a notched appearance.

The Cause of the Variations in the Gastric Hunger Contractions with Age

Dr. T. L. Patterson, Baltimore: By starving young and old animals, it is possible to show that in very young dogs the contractions of the empty stomach are practically continuous, while in old animals there is a decrease in the gastric hunger activity proportional to the advance in age. Gastric hunger variations appear in the gastric tonus, in the strength and rapidity of the hunger contractions, and especially in the duration of the hunger and quiescence periods of the stomach, the cause of which is produced by two differentiated factors, namely, age and rate of metabolism. The gastroneuromuscular apparatus is independent of the central nervous system. In prolonged starvation, the hunger sensation may be lost, while the hunger contractions persist.

DISCUSSION

Dr. Ludwig W. Kast, New York: Is there any relation between the hunger contractions and the gastric secretion?

Dr. Joseph C. Bloodgood, Baltimore: In these experiments, did Dr. Patterson differentiate between the different groups by restricting all food and liquid in one group, and restricting food alone in the other? If so, I should like to know whether there was any difference in the contractions when the animals had all the water they wanted.

Dr. T. L. Patterson, Baltimore: Regarding the relation between the gastric hunger contractions and the gastric secretion, anything that comes in contact with the gastric mucosa will inhibit the gastric hunger contractions at once whether it be water or food. The hunger contractions do not seem to have much effect on the gastric secretion. All the animals had free access to water, but had no food.

The Effect of Certain Gastric Conditions on the Salivary Secretion

Dr. T. R. Brown, Baltimore: Our studies show that the chewing of bland substances produces a considerable flow of saliva, which is quite rich in diastatic ferment. A comparison of normal cases with cases in which there was increased, diminished or absent hydrochloric acid showed that there were no variations from the normal in respect to quantity, alkalinity or diastatic ferment content of the saliva sufficiently great to make us feel that there is any definite relationship between the character of the gastric juice and that of the saliva. It does not appear probable that quantitative or ferment changes in the saliva play any considerable part in the development of the glossitis, gingivitis or stomatitis, so frequently met in a case of achylia gastrica.

Dr. E. B. Freeman, Baltimore: In one of our cases of achylia due to carcinoma of the stomach, the diastase test was positive, and also in a case of hyperacidity, there being a large amount of diastase present in both cases.

Medicolegal

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the left wrist, removing probably a small portion of the unciform bone, and including in the operation all the metacarpal bones of the four fingers at their articulation with the unciform, os magnum, and trapezoid, respectively. The os magnum, trapezoid, and trapezium were clearly left intact, and the bones of the thumb, while possibly injured by the shot, retained their continuity. The thumb itself was not removed, although the ball of that member was partially destroyed and the ligaments so injured that it was stiff and entirely useless. The medical witness stated that in his opinion it would have been better to have removed what remained of the thumb, so that the plaintiff could have had an artificial hand. There was enough of the flesh of the hand to cover the bones of the wrist, forming what the medical witness termed "a bunch of hardened callus" at the end of the wrist, probably no more than good surgery would require for the protection of the bones of the wrist. The court is of the opinion that the plaintiff was within the true meaning and spirit of the policy. He had a good hand against losing the use of which he desired to insure. If he had been told the intent and meaning of the policy was such that if in case of a necessary amputation the surgeon should leave some useless shred of his hand to be a source of annoyance and inconvenience, and thereby his policy would be practically worthless, does any sane person believe for a moment he would have taken out the policy? The substance of what he sought was insurance against the possible loss of his hand as a useful member of his body. Substantially he lost his hand by removal at the wrist.

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AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION

Eighteenth Annual Meeting, held at Baltimore, May 10, 1915

The President, DR. JOSEPH C. BLOODGOOD, in the Chair

Benign Growths of the Stomach

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DISCUSSION

DR. JACOB KAUFMANN, New York: A patient whom I had occasion to see several times with her physician, a girl, suffered from her fourteenth to her nineteenth year with repeated gastric hemorrhages of very severe type, occurring shortly before menstruation. Roentgenograms made on two occasions showed the characteristic picture of penetrating ulcer of the duodenum. At operation, the duodenum and pyloric part of the stomach were found normal, but fibroma was discovered at its cardiac end. The mucous membrane around it was quite congested, and when the tumor was handled, a profuse hemorrhage was produced. I think we have every reason to pronounce this a true case of menstrual bleeding from the stomach.

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DR. JOHN A. LICHTY, Pittsburgh: I should like to ask Dr. Basch whether he relies largely on the Roentgen ray in making the diagnosis. The slides he has exhibited seem to show a rather large shadow. In cases of small polypi, however, I can hardly see how the Roentgen ray would help.

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The Cause of the Variations in the Gastric Hunger Contractions with Age

DR. T. L. PATTERSON, Baltimore: By starving young and old animals, it is possible to show that in very young dogs *the contractions of the empty stomach are practically continuous*, while in old animals there is a decrease in the gastric hunger activity proportional to the advance in age. Gastric hunger variations appear in the gastric tonus, in the strength and rapidity of the hunger contractions, and especially in the duration of the hunger and quiescence periods of the stomach, the cause of which is produced by two differentiated factors, namely, age and rate of metabolism. The gastroneuromuscular apparatus is independent of the central nervous system. In prolonged starvation, the hunger sensation may be lost, while the hunger contractions persist.

DISCUSSION

DR. LUDWIG W. KAST, New York: Is there any relation between the hunger contractions and the gastric secretion?

DR. JOSEPH C. BLOODGOOD, Baltimore: In these experiments, did Dr. Patterson differentiate between the different groups by restricting all food and liquid in one group, and restricting food alone in the other? If so, I should like to know whether there was any difference in the contractions when the animals had all the water they wanted.

DR. T. L. PATTERSON, Baltimore: Regarding the relation between the gastric hunger contractions and the gastric secretion, anything that comes in contact with the gastric mucosa will inhibit the gastric hunger contractions at once whether it be water or food. The hunger contractions do not seem to have much effect on the gastric secretion. All the animals had free access to water, but had no food.

The Effect of Certain Gastric Conditions on the Salivary Secretion

DR. T. R. BROWN, Baltimore: Our studies show that the chewing of bland substances produces a considerable flow of saliva, which is quite rich in diastatic ferment. A comparison of normal cases with cases in which there was increased, diminished or absent hydrochloric acid showed that there were no variations from the normal in respect to quantity, alkalinity or diastatic ferment content of the saliva sufficiently great to make us feel that there is any definite relationship between the character of the gastric juice and that of the saliva. It does not appear probable that quantitative or ferment changes in the saliva play any considerable part in the development of the glossitis, gingivitis or stomatitis, so frequently met in a case of achylia gastrica.

DR. E. B. FREEMAN, Baltimore: In one of our cases of achylia due to carcinoma of the stomach, the diastase test was positive, and also in a case of hyperacidity, there being a large amount of diastase present in both cases.

Medicolegal

Making a Public Nuisance of Milk Pasteurization—Criminal Intent

(People vs. Borden's Condensed Milk Co. (N. Y.), 151 N. Y. Supp. 547)

The Supreme Court of New York, Appellate Division, Second Department, affirms a judgment holding the defendant guilty of having committed the crime of maintaining a public nuisance in its method of pasteurizing milk. The court says that the defendant claimed that all the acts or omissions charged against it were merely incidental to the process of "pasteurization," and that therefore its acts or omissions had statutory sanction and could not be considered as constituting a public nuisance in a legal sense. It may be granted at once that the ordinance of the board of health had the force of a statute, for the Greater New York Charter so provides. But this ordinance did not purport to prescribe nor to authorize any detail in the act of "pasteurization," such as was charged against the defendant in this proceeding. It did require "pasteurization" generally, but it is very far-fetched to think that this requirement authorized, much less directed, the making of unnecessary noises in the very early hours of morning, either within or without the defendant's plant, and to the great annoyance of the residents of the neighborhood. The defendant urged further that the judgment was reached by ignoring the necessity of proving a criminal intent on the part of the defendant, and that therefore it was based on a substantial error of law. What is meant by the phrase "criminal intent," within the scope of the definition of the crime of maintaining a public nuisance? It does not mean that one who is charged with the commission of that offense should be shown to have consciously and positively intended to interfere with the comfort and repose of "any considerable number of persons." His criminality is independent of any positive purpose of annoyance. It can arise as well from his very failure to think of anybody but himself, and, generally, public nuisances, whenever and wherever they exist, arise from just such self-concentration. The acts involved here were so continuous and persistent as to indicate on the part of the defendant's employees a complete indifference to the rights of others and, as to the crime now under consideration, to establish a "criminal intent" within the meaning of the law.

Injury to Previously Injured Person—Distinction Between Hypothetical and Other Questions

(Blake vs. City of Bedford (Ia.), 151 N. W. R. 74)

The Supreme Court of Iowa affirms a judgment for $2,750 in favor of the plaintiff, a man about 60 years old, who was injured on a defective sidewalk more than nine months after he had been injured by a fall from a ladder. The court says that the fact that the plaintiff had sustained a prior injury was of course material, but it constituted no defense to this action, if he succeeded in showing to the jury, that, by reason of the defendant's negligence with respect to its sidewalk, he was made to fall, without fault on his part, and thereby received other or additional or increased injury. A physician who was shown to have personally examined and treated the plaintiff for his injuries was asked for his opinion whether a union, bony or fibrous, of the broken bone had taken place prior to the plaintiff's fall on the sidewalk. In this question the witness was asked, among other things, to speak from his examination and observation of the patient. It was urged that the witness should not have been allowed to answer until he had first detailed to the jury all that he had learned or discovered in his examination and treatment of the patient. But such is not the rule. If a witness is testifying purely as an expert, pronouncing an opinion solely on a hypothetical state of facts, then of course it is the right of the opposing party to insist that the question shall disclose all the facts on which the opinion is to be pronounced. But, if the witness be a physician who professes to speak from his personal observation, examination, and treatment, he may properly express an opinion based thereon, it being, of course, the privilege of counsel on the other side, by cross-examination, to test its accuracy and reasonableness.

Information Not Obtained for Purpose of Treatment Is Not Privileged

(Cherpeski vs. Great Northern Railway Co. (Minn.), 150 N. W. R. 1091)

The Supreme Court of Minnesota, in reversing a judgment obtained by the plaintiff for personal injuries, holds that it was error to exclude the testimony of two physicians called as witnesses by the defendant. One of them was a physician and surgeon of the Northwestern Road. The defendant proposed showing that the plaintiff went to him and was examined for the purpose of ascertaining whether he could enter the service of the road. The other physician was the general surgeon of the defendant. The plaintiff, according to the offered proof, went to him to ascertain whether he was physically able to remain in the service of the company. In neither case was curative treatment contemplated. In neither case did the physician obtain information to enable him to prescribe or act for the plaintiff. Objections to the proposed testimony were sustained on the ground that the information sought was privileged. But from the showing made or offered to be made the court thinks it affirmatively appeared that the information obtained by the two physicians was not privileged. At common law communications between physician and patient or information obtained by the physician in treating his patient were not privileged. The privilege comes from the statute.

Injury from Negligently Cutting Through Bandage—Care Required in Public Dispensary

(Volkell vs. Wolf (N. Y.), 151 N. Y. Supp. 918)

The Supreme Court of New York, Appellate Term, First Department, which affirms a judgment in favor of the plaintiff, amount not stated, says that the defendant, a surgeon, operating in a dispensary, inflicted an injury on this infant plaintiff while cutting through a bandage in which the child's broken arm was wrapped. The defendant claimed that, if the bandage had been adjusted properly and in the usual fashion, the patient's hand would have been fastened tightly to the body and in no danger of being cut. He admitted that before cutting he made no examination to ascertain where the hand was, or what was concealed under the point where he applied the shears, claiming that "he had a right to assume that it (the bandage) was properly put on; also that, "I think the whole hand was exposed, but I did not see it; I had the impression that the bandage was outside of the upper part;" also that it was merely good fortune that the infant's hand was not cut off. The hurry of work in a public dispensary does not excuse the lack of ordinary care. The defendant could not assume that the hand was in a safe position, and rely on that, when the fact could be readily ascertained by himself before applying the shears. The finding of negligence was warranted by the evidence.

What Constitutes Removal of Hand at Wrist

(Moore vs. Aetna Life Insurance Co. (Ore.), 146 Pac. R. 151)

The Supreme Court of Oregon affirms a judgment for the plaintiff, where the question was disputed as to whether his hand had been removed at the wrist. The court says that the question was one of extreme nicety, and there is a dearth of decisions covering the exact point, there being no case cited by counsel or discovered by the court involving the construction of a policy exactly identical in its terms with the one on which this action was predicated. This was an action to recover on an accident insurance policy, which provided that the plaintiff should be entitled to recover $1,000 if he should suffer accidental injuries resulting in the "loss of a hand by removal at or above the wrist." The plaintiff was accidentally shot in the hand, necessitating the removal of all the bones of the hand at the wrist except the metacarpal bone of the thumb. From the medical testimony, which was meager, and photographs taken about the time of the trial, it appears that the amputation began at the inner side of

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the surrounding skin in relation to the condition of the colon before the operation. If it has been diseased to such an extent that the ileum has taken up the function of the colon, we may find no irritation and normal stools, as in this case. When, however, the ileum is functionating normally, we may have trouble, as in my last case.

Dr. J. M. Lynch, New York: I have never performed an ileostomy on a person with a practically healthy colon, so I cannot say how its contents would flow from the ileum in these circumstances. I do not know that we ever have polyposis with a simple or catarrhal inflammation. I believe that the polyposis is secondary to the inflammation.

Study of Carbohydrate Cures in Diabetes Mellitus

Dr. John C. Hemmeter, Baltimore: Diabetes mellitus is a disease the pathogenesis of which has involved every organ of the body except the heart and lungs, and the chief cause of which is an affection of the islands of Langerhans in the pancreas. My personal observations were made under quantitative controls of the blood, stools and urine. The method for determining the amount of sugar in the blood is one within the reach of every general practitioner. It is the Ivar Bangs method of quantitative estimation. We must differentiate between the disappearance of sugar from the urine and increased carbohydrate tolerance. A human being cannot live without sugar, so we cannot entirely withhold it; but we can give a kind that is not converted into glycogen, but goes into the circulation direct, such as the oatmeal inosit and hediosit sugar.

DISCUSSION

Dr. John A. Lichty, Pittsburgh: So far as the method of Bangs is concerned, I do not believe that it will help us clinically until there has been further study. There must be more sugar at some times during the day than at others, according to the times of taking food and taking exercise. I did not see much difference in the patients to whom I fed hediosit. I have recently tried Allen's method of treatment in nine cases with very good results.

Dr. Max Einhorn, New York: In some cases, which I have studied, the ferments may be normal; in some, there is hypersecceretion of the pancreas; and in others, there is too little secretion. The external secretion may be changed in different ways.

Dr. Charles O. Stockton, Buffalo: There is no doubt that in the majority of severe cases, the patients may be made sugar-free, and even free from the presence of acetone bodies in the urine, by this method; and that we may establish a higher and higher carbohydrate balance; but occasionally we find a patient in whom we cannot raise the carbohydrate tolerance above about 30 gm., and who may easily lose even that. These unsuitable cases will do better on certain forms of carbohydrate than on others.

Dr. Ludwig W. Kast, New York: What the general practitioner wants to know is how much of all these studies in regard to these different forms of carbohydrate lends itself to direct practical application.

Dr. John C. Hemmeter, Baltimore: You must try to increase the weight of the patient, without trying to get him sugar-free. A little sugar does not matter, if his carbohydrate tolerance is increasing. After this treatment, which has an effect on the islands of Langerhans, the patient can stand bread and starch better.

The Value of Rectal Alimentation

Dr. Harry Adler, Baltimore: The usual method of rectal feeding is unsatisfactory. The drop (Murphy) method, with peptonized milk and sugar solution, is markedly less annoying. In our experiments, the largest amount of nitrogen that we were able to supply daily was 8.9 gm., of which 8.06 gm. was returned with the stools. According to the observations of Dr. Muller, the stools of individuals taking absolutely no nourishment contain 0.2 gm. per diem. With this deducted from our estimations of the returned nitrogen, we have in no case observed an absorption of more than 50 per cent. of the protein supplied; and it has fallen to as low as 30 per cent. The average amount of nitrogen absorbed in these cases was 1.14 gm. per diem. When we compare the amount of nitrogen lost by these cases with the amount that it was possible for them to absorb by colonic feeding, we realize how little we can accomplish. The difference between nutritional enteroclysis and normal salt enteroclysis is little over one-tenth of the tissue albumin loss per diem; over the periods of time that rectal feeding is usually carried out, it is, from a practical standpoint, an almost negligible quantity.

DISCUSSION

Dr. Jacob Kaufmann, New York: Some of the nitrogen found in the stools is derived from the secretions, and this constitutes a possible source of error in making the estimations. I do not think that there is absolute proof of the uselessness of nutrient enemas.

Dr. Max Einhorn, New York: We should try to give glucose by rectum, as it is the best material.

Dr. Franklin W. White, Boston: I think it is valuable to contrast with this piece of work done by Dr. Adler the fact that nitrogenous equilibrium can be maintained by duodenal feeding. You can get it all in by the duodenum, but not by the rectum.

Dr. Louis M. Gompertz, New Haven, Conn.: In some experiments that we conducted, a few years ago, it was found that the rectum is capable of salt absorption to about the same degree as the stomach. Experiments were also made with various other solutions. While I believe rectal feeding to be a pure makeshift, half a loaf is better than none. The use of salt solutions, water and dextrose solutions will tide the patients over the critical period required for rectal feeding.

Dr. John C. Hemmeter, Baltimore: I should like to know whether the calculation that you can supply only one-tenth of the nitrogen required by colonic feeding was based on the metabolism experiments made during rest or during activity. During rest, the food taken is entirely used in keeping up the heat of the body, which can be done without food, by artificial means.

Dr. Harry Adler, Baltimore: The patients were absolutely at rest, in bed, or they could not have been fed by the drop method. We could supply only one-tenth of the amount needed when at rest. It is impossible to estimate accurately the absorption of sugar. We cannot give large amounts of milk by the drop method, because the rectum soon becomes irritated. We gave 8 ounces at a feeding, and gave three feedings a day.

Duodenal Ulcer with Especial Reference to Its Roentgen-Ray Diagnosis

Dr. R. Walter Mills, St. Louis: The object of the paper is to review certain clinical findings in duodenal ulcer in their relation to clinical teaching and experience. The observations are founded on a series of thirty operatively confirmed cases of duodenal ulcer and eighty cases so diagnosed and treated medically, in which both clinical and Roentgen-ray findings were characteristic of duodenal ulcer, including six with a history of hemorrhage. We may conclude that the greater efficiency of controlling alkalies in duodenal ulcer as compared with gastric ulcer is due to the small amount of stomach and duodenal contents present at the time; that pylorospasm has nothing to do with causing the pain of duodenal ulcer; that the pain must originate in the cap; that all indications are unfavorable to the idea that the pain of duodenal ulcer is due to hypertension, the so-called adequate stimulus of visceral pain, but is in favor of the idea that the nerve-endings in the ulcer floor become abnormally sensitive to an excess of hydrochloric acid.

The Roentgen Ray in Gastro-Intestinal Affections

Dr. Charles D. Aaron, Detroit: I wish to make a plea for a standard Roentgen-ray test meal. I am of the opinion that the adoption of the following suggestions will increase the value of the Roentgen ray as a diagnostic aid in gastro-enterology: The roentgenologist should be a trained and experienced anatomist and pathologist. There should be standardization of methods and technic. The physician should acquire the ability to make a probable estimation of

DISCUSSION

Dr. G. C. Mizell, Atlanta, Ga.: It has seemed to me that during the last five years there has been a marked increase in the number of cases of hyperchlorhydria and achylia gastrica in patients in the South presenting themselves for treatment of gastro-intestinal disturbance. I have not found any relationship between the gastric and the salivary secretion. I have tested for the ferments, and have not found them absent in any of the cases.

Dr. Max Einhorn, New York: I think that achylia gastrica is more frequent in patients coming from the South than in Northerners, but cannot say whether it is on the increase. In fact, it would not be easy to tell, because formerly we did not know much about achylia.

Dr. John A. Lichty, Pittsburgh: I have always been accustomed to attribute the dryness of the mouth and the glossitis that we usually find in cases of achylia gastrica to that condition. I have found that patients with malignant disease of the stomach complain frequently of an increase of saliva. I have recently come to the conclusion that this occurs only in those cases of carcinoma in which the growth is near the esophageal opening.

Dr. Jacob Kaufmann, New York: The difficulty I have found is in examining the saliva, which is a very complicated secretion. It is composed of secretions of different glands. It is a question whether, in examining the saliva, it is sufficient to examine for alkalinity and different ferments.

Dr. Ludwig W. Kast, New York: There are two points that interested me particularly. One is the fact that mechanical stimulation of the salivation brings about secretion from the parotids. The other point is the relationship between the nutritive or inflammatory changes in the tongue and the mucous membrane of the mouth and conditions of the stomach. Achylia gastrica may be secondary to disturbances in the mouth.

Dr. Charles D. Aaron, Detroit: In cases of pernicious anemia in which there is achylia gastrica, we usually find a glossitis. The subsidence of glossitis with the giving of hydrochloric acid leads one to believe that there is some connection between the stomach and the trouble in the mouth.

Dr. Joseph C. Bloodgood, Baltimore: During the last year I have been especially interested in a group of cases in which the tongue showed a peculiar lesion that I was at first afraid might be cancer. Of 100 cases of cancer of the tongue, however, only three were in women; but this lesion seems to be just as frequent in women as in men. It is often associated with achylia. It occurs in the middle of the tongue, from base to tip; but I have never seen cancer, except at the tip.

Dr. E. B. Freeman, Baltimore: In both cases, the carcinoma was along the lesser curvature, and probably primary.

Dr. T. R. Brown, Baltimore: We had the patient chew a piece of rubber tubing of definite size for twenty minutes, and this brought about secretion. I am quite sure that glossitis and gingivitis are more prevalent in benign than in malignant achylia. The hyperacidities and the achylias showed about the same degree of secretion. I do not believe that there is much relation between gastric and salivary secretion, but it is probable that there is a relation between the salivary and the pancreatic.

Recent Studies in Pancreatic Secretion

Dr. Max Einhorn, New York: I have examined a number of normal persons by means of the agar-tube method, in order to find the standard content of amylopsin, steapsin and trypsin in the pancreatic juice. Boiled milk and unboiled milk were used in examining both the gastric and the pancreatic secretions. Each ferment should be examined separately, because if one ferment is found high, the others are not always high in proportion. By the amount of change found in the tube after twenty hours, one can estimate approximately the amount of the ferment examined that is present.

DISCUSSION

Dr. T. R. Brown, Baltimore: An interesting point is the variation in the amount of the different ferments according to the pabulum given.

Dr. Franklin W. White, Boston: It seems to me that some of the variation in the amount of the three ferments may be due to the technic of the ferment test, which is certainly not simple or altogether satisfactory. I think the proteolytic ferment, the trypsin, is more valuable for diagnostic purposes than either the amylase or the lipase.

Dr. Jacob Kaufmann, New York: Usually these examinations are made with the patient in a fasting condition. It is a question whether, if the tube is introduced into the duodenum before the meal is given, it gives one an opportunity to tell how the pancreas secretes.

Dr. Clement R. Jones, Pittsburgh: In a case in which the feces contained large fermented curds, this seemed to me to demonstrate a lack of balance between the pancreatic and other intestinal secretions. The condition was controlled by administering sodium citrate in the milk, thus splitting up the curds.

Dr. Max Einhorn, New York: The tubes spoil after being kept more than two or three months; but if kept on ice, they last very well for five or six weeks. I have made the examinations with the patients in a fasting condition or after taking tea and sugar. If solid food is given, the tube will block up; but any liquid food may be given. The results obtained in a fasting condition were the same as those after taking tea and sugar.

Surgical Physiology of the Colon

Dr. William Draper, New York: The influence of heredity and environment on the functional abnormalities of the human colon is great, and these fundamental biologic factors are worthy of further consideration. To attribute pathologic conditions of the colon to any single factor is a grave error, as isolated deficiencies may be compensated for. Many complicated factors go to maintain the balance. No matter how severe the derangement within the bowel, so long as balance is maintained, the body is protected. When the defensive power is weakened, the symptoms immediately arise.

DISCUSSION

Dr. Treby Lyon, New York: From personal experience, I can say that after solidification of the feces, which occurs in six weeks, there is so little discomfort after ileostomy compared with the relief afforded by the cessation of the symptoms that I should unhesitatingly advise its employment in severe cases of inflammation of the colon.

Dr. J. M. Lynch, New York: Dr. Lyon came under my care three years ago, suffering from diarrhea alternating with constipation, loss of weight, and the passage of blood and mucus. The methods of treatment previously tried by him had proved of little use, and I suggested treating the polyposis, which is usually associated with inflammation of the colon, by putting the colon at rest by means of complete ileostomy, which was done. In seven other cases as well the patients had free movements after a short time. There is perhaps a little more discomfort from an ileostomy than from a colostomy, but very little; and all the patients had gained in weight. Dr. Lyon practices his profession, and very few people in his town know that he has an opening in his side. There are no tumors remaining now, so far as we can see.

Dr. J. C. Bloodgood, Baltimore: I think we have had a pretty good demonstration that side-tracking of the colon with an artificial anus near the cecum is by no means an unbearable condition.

Dr. Seymour Basch, New York: Was the inflammation in Dr. Lynch's cases primary, and the polyposis secondary, or was it an infectious process?

Dr. Willy Meyer, New York: Was the colon side-tracked for the purpose of avoiding the irritation from the feces or for the sake of irrigation of the colon? It is important for physicians and surgeons to find out whether this radical treatment is always necessary.

Dr. Joseph C. Bloodgood, Baltimore: When we side-track the colon by bringing out the ileum, there will be a difference in the irritative character of the effect of the fecal flow on the surrounding skin in relation to the condition of the colon before the operation. If it has been diseased to such an extent that the ileum has taken up the function of the colon, we may find no irritation and normal stools, as in this case. When, however, the ileum is functionating normally, we may have trouble, as in my last case.

DR. J. M. LYNCH, New York: I have never performed an ileostomy on a person with a practically healthy colon, so I cannot say how its contents would flow from the ileum in these circumstances. I do not know that we ever have polyposis with a simple or catarrhal inflammation. I believe that the polyposis is secondary to the inflammation.

Study of Carbohydrate Cures in Diabetes Mellitus

DR. JOHN C. HEMMETER, Baltimore: Diabetes mellitus is a disease the pathogenesis of which has involved every organ of the body except the heart and lungs, and the chief cause of which is an affection of the islands of Langerhans in the pancreas. My personal observations were made under quantitative controls of the blood, stools and urine. The method for determining the amount of sugar in the blood is one within the reach of every general practitioner. It is the Ivar Bangs method of quantitative estimation. We must differentiate between the disappearance of sugar from the urine and increased carbohydrate tolerance. A human being cannot live without sugar, so we cannot entirely withhold it; but we can give a kind that is not converted into glycogen, but goes into the circulation direct, such as the oatmeal inosit and hediosit sugar.

DISCUSSION

DR. JOHN A. LICHTY, Pittsburgh: So far as the method of Bangs is concerned, I do not believe that it will help us clinically until there has been further study. There must be more sugar at some times during the day than at others, according to the times of taking food and taking exercise. I did not see much difference in the patients to whom I fed hediosit. I have recently tried Allen's method of treatment in nine cases with very good results.

DR. MAX EINHORN, New York: In some cases, which I have studied, the ferments may be normal; in some, there is hyperseceretion of the pancreas; and in others, there is too little secretion. The external secretion may be changed in different ways.

DR. CHARLES O. STOCKTON, Buffalo: There is no doubt that in the majority of severe cases, the patients may be made sugar-free, and even free from the presence of acetone bodies in the urine, by this method; and that we may establish a higher and higher carbohydrate balance; but occasionally we find a patient in whom we cannot raise the carbohydrate tolerance above about 30 gm., and who may easily lose even that. These unsuitable cases will do better on certain forms of carbohydrate than on others.

DR. LUDWIG W. KAST, New York: What the general practitioner wants to know is how much of all these studies in regard to these different forms of carbohydrate lends itself to direct practical application.

DR. JOHN C. HEMMETER, Baltimore: You must try to increase the weight of the patient, without trying to get him sugar-free. A little sugar does not matter, if his carbohydrate tolerance is increasing. After this treatment, which has an effect on the islands of Langerhans, the patient can stand bread and starch better.

The Value of Rectal Alimentation

DR. HARRY ADLER, Baltimore: The usual method of rectal feeding is unsatisfactory. The drop (Murphy) method, with peptonized milk and sugar solution, is markedly less annoying. In our experiments, the largest amount of nitrogen that we were able to supply daily was 8.9 gm., of which 8.06 gm. was returned with the stools. According to the observations of Dr. Muller, the stools of individuals taking absolutely no nourishment contain 0.2 gm. per diem. With this deducted from our estimations of the returned nitrogen, we have in no case observed an absorption of more than 50 per cent. of the protein supplied; and it has fallen to as low as 30 per cent. The average amount of nitrogen absorbed in these cases was 1.14 gm. per diem. When we compare the amount of nitrogen lost by these cases with the amount that it was possible for them to absorb by colonic feeding, we realize how little we can accomplish. The difference between nutritional enteroclysis and normal salt enteroclysis is little over one-tenth of the tissue albumin loss per diem; over the periods of time that rectal feeding is usually carried out, it is, from a practical standpoint, an almost negligible quantity.

DISCUSSION

DR. JACOB KAUFMANN, New York: Some of the nitrogen found in the stools is derived from the secretions, and this constitutes a possible source of error in making the estimations. I do not think that there is absolute proof of the uselessness of nutrient enemas.

DR. MAX EINHORN, New York: We should try to give glucose by rectum, as it is the best material.

DR. FRANKLIN W. WHITE, Boston: I think it is valuable to contrast with this piece of work done by Dr. Adler the fact that nitrogenous equilibrium can be maintained by duodenal feeding. You can get it all in by the duodenum, but not by the rectum.

DR. LOUIS M. GOMPERTZ, New Haven, Conn.: In some experiments that we conducted, a few years ago, it was found that the rectum is capable of salt absorption to about the same degree as the stomach. Experiments were also made with various other solutions. While I believe rectal feeding to be a pure makeshift, half a loaf is better than none. The use of salt solutions, water and dextrose solutions will tide the patients over the critical period required for rectal feeding.

DR. JOHN C. HEMMETER, Baltimore: I should like to know whether the calculation that you can supply only one-tenth of the nitrogen required by colonic feeding was based on the metabolism experiments made during rest or during activity. During rest, the food taken is entirely used in keeping up the heat of the body, which can be done without food, by artificial means.

DR. HARRY ADLER, Baltimore: The patients were absolutely at rest, in bed, or they could not have been fed by the drop method. We could supply only one-tenth of the amount needed when at rest. It is impossible to estimate accurately the absorption of sugar. We cannot give large amounts of milk by the drop method, because the rectum soon becomes irritated. We gave 8 ounces at a feeding, and gave three feedings a day.

Duodenal Ulcer with Especial Reference to Its Roentgen-Ray Diagnosis

DR. R. WALTER MILLS, St. Louis: The object of the paper is to review certain clinical findings in duodenal ulcer in their relation to clinical teaching and experience. The observations are founded on a series of thirty operatively confirmed cases of duodenal ulcer and eighty cases so diagnosed and treated medically, in which both clinical and Roentgen-ray findings were characteristic of duodenal ulcer, including six with a history of hemorrhage. We may conclude that the greater efficiency of controlling alkalies in duodenal ulcer as compared with gastric ulcer is due to the small amount of stomach and duodenal contents present at the time; that pylorospasm has nothing to do with causing the pain of duodenal ulcer; that the pain must originate in the cap; that all indications are unfavorable to the idea that the pain of duodenal ulcer is due to hypertension, the so-called adequate stimulus of visceral pain, but is in favor of the idea that the nerve-endings in the ulcer floor become abnormally sensitive to an excess of hydrochloric acid.

The Roentgen Ray in Gastro-Intestinal Affections

DR. CHARLES D. AARON, Detroit: I wish to make a plea for a standard Roentgen-ray test meal. I am of the opinion that the adoption of the following suggestions will increase the value of the Roentgen ray as a diagnostic aid in gastroenterology: The roentgenologist should be a trained and experienced anatomist and pathologist. There should be standardization of methods and technic. The physician should acquire the ability to make a probable estimation of the diagnostic value of a Roentgen-ray report. The patient should not be subjected to operation without a confirmation of the original findings by a second Roentgen examination, made after an interval of two or three days. The clinician must not attach too much significance to the Roentgen-ray findings, unless they are absolutely decisive. The lesion discovered by the Roentgen ray must be a constant finding, regardless of position or slight variations in technic. Great care must be exercised to differentiate physiologic and spastic conditions from those that are essentially pathologic. The Roentgen-ray report should be considered on the same basis as any laboratory report. The physician must carefully correlate the Roentgen-ray findings with the anamnesis and the clinical and laboratory findings.

DISCUSSION

Dr. F. H. Baetjer, Baltimore: With different meals, the motility and emptying time of the stomach are different; so that it is impossible to reconcile the findings of one roentgenologist with another. Every stomach is different, so you must determine the motility from the standpoint of that individual stomach. For instance, the stomach of a fat man occupies a horizontal position, and tends to empty more quickly than the fish-hook stomach found in a thinner person. Moreover, chronic irritative lesions elsewhere in the digestive tract will produce changes in the gastric condition.

Dr. Arthur F. Chase, New York: In making a diagnosis, it is important to realize that the patients are laboring under a peculiar nervous condition with this enormous amount of bismuth in the stomach. Prolonged examinations, therefore, will produce abnormal pictures. I believe the pain in duodenal ulcer to be due to spasm produced by substances passing over irritated nerves.

Dr. George R. Lockwood, New York: While Roentgen-ray diagnosis has been one of the most valuable things in internal medicine brought into use within the last few years, it has its limitations. When it agrees with clinical and laboratory findings, we are quite correct in thinking we have done a good thing in making Roentgen-ray examination; but when the Roentgen-ray diagnosis is not corroborated or is antagonized by other clinical laboratory methods, we are decidedly puzzled.

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5 *An Improved Method of Suturing Flaps in Amputation of Cervix. A. Heineberg, Philadelphia.
6 Transfusion by Syringe Method. G. M. Dorrance, Philadelphia.
7 Acute Traumatic Displacement of Uterus. E. D. Barringer, New York.
8 Clinical Significance of Amenorrhea in Diagnosis of Tubal Pregnancy. M. Rabinovitz, New York.
9 Rapid Method of Determining Expected Date of Confinement. F. L. Adair, Minneapolis.
10 Problems of Foundling Home. J. Zahorsky, St. Louis.
11 Best Artificial Food Mixtures for Hospital Babies. H. Lowenburg, Philadelphia.
12 Prevention of Infantile Atrophy in Hospitals. E. W. Mitchell, Cincinnati.

3. Use and Abuse of Pituitary Extract in Obstetrics.—Norris would never use this without exhausting his abilities in obstetric diagnosis. He considers that healthy multiparas with relaxed birth canals offer the widest and safest fields. For inertia in the early stage of labor, the sleep of morphin, chloral or scopolamin is preferred; in the advanced stages of labor, pituitary extract, he says, often will wisely keep forceps innocuous. The uterus, after the tumultuous visitation of pituitary extract, usually needs the steadying hand of ergot. Half doses are more often to be employed than full doses.

4. **Method of Closing Abdominal Incision.**—With the method used by Heineberg, cutting of the skin and the introduction of infection from the cutaneous surface by the silkworm-gut sutures is avoided. It is performed as follows: The peritoneum is closed with a continuous suture of plain catgut. Silkworm-gut sutures are then introduced about 1 inch apart at the edge of the incision just beneath the skin surface and include all of the layers of the abdominal wall except the peritoneum. The point of emergence of the suture on one side of the incision must be exactly opposite the point of entrance on the other. Each end of the suture is temporarily held in a hemostatic forceps. The deep fascia or aponeurosis is closed with a chromic-catgut suture, continuous or interrupted. The edges may be made to overlap if desired. The skin edges are apposed by a subcuticular stitch of plain catgut. The ends of the silkworm-gut sutures are then crossed and tied over a strip of iodoform gauze.

5. **Suturing in Amputation of Cervix.**—The following method of suture has been devised and employed by Heineberg with gratifying results. He says it is particularly applied to the single flap and circular amputations and the operation of tracheloplasty described by Bonney, but may also be employed in the double flap amputation. The advantages claimed for it are the accurate approximation of the edges of the flaps with a minimum degree of tension on the sutures. In suturing the flaps after a single flap amputation or tracheloplasty proceed as follows: A chromic catgut suture, the traction suture, is armed at each end with a well curved needle. Each needle is passed through the flap about ¼ inch from its edge; the points of introduction are on the raw surface of the flap ⅛ inch on each side of the median line and the points of emergence are on the vaginal or outer surface of the flap. Both needles are then introduced through the base of the flap at the junction of the raw surface and the mucous membrane of the cervical canal. They are passed through the entire thickness of the lip of the cervix and made to emerge on the vaginal surface about ¾ inch above the edge of the flap and ¼ inch apart. After sufficient traction has been applied to the ends of the suture to invert the flap and bring its edge and base into accurate apposition (avoiding unnecessary tension) the ends of the suture are tied to each other. The other lip is sutured in the same way. The two lips of the cervix which have been separated by the amputation, are drawn together by a mattress suture placed in each side of the cervix about ¼ inch external to the canal. This suture begins in the vaginal surface of the anterior lip about ½ inch above the edge of the flap and emerges on the raw surface of the flap near its base; it is then passed through the lower lip from the raw to the vaginal surface. In a like manner it is passed back through both lips on a line ¼ inch external to the first one. When the two ends of this suture are tied to each other the tension should be sufficient to insure hemostasis and approximation of the edges of the lips. These edges are then held in accurate apposition by interrupted sutures which should be superficially placed and firmly, but not tightly tied.

American Journal of Public Health, Boston

April, V, No. 4, pp. 281-386

13 Science and Public Health. L. K. Frankel, New York.
14 Control of Venereal Diseases by Health Departments. F. H. Baker, Worcester
15 Reporting and Control of Venereal Diseases. L. Chargin, New York.
16 Evening Clinics for Syphilis and Gonorrhea. M. M. Davis, Jr., Boston.
17 Curse of Narcotism in America. J. Marks, South Hadley.
18 Enforcement of Tennessee Antinarcotics Law. L. P. Brown.
19 Independent Attitude of "Dope User"—What Are We Going To Do About It. D. McCaskey, Lancaster, Pa.
20 Puerperal Septicemia. W H. Guilfoy, New York.
21 Prevention of Odors at City Refuse Disposal Works. R. Hering, New York.
22 Educational Work in Sanitary Food Values in New York City. D. B. Armstrong, New York.
23 Practical Application of "Saltpeter Method" for Determining Strength of Sewages. A. Lederer, Chicago.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

April, II, No. 10, pp. 613-676

24 Pathology of Verruga Peruviana. R. P. Strong and E. E. Tyzzer, Boston.
25 Trichomoniasis of Vagina and Mouth. K. M. Lynch, Charleston, S. C.
26 Climate of Eastern Nicaragua and Honduras, Notes on Health, Death Rates and Character of Country. J. F. LeBaron.
27 *Failure of Emetin Hydrochlorid, but Apparent Success of Salvarsan in Case of Balantidiosis. B. H. Dutcher, San Juan, P. R.

27. **Failure of Emetin, but Success with Salvarsan in Case of Balantidiosis.**—Emetin apparently having failed in this case, on May 5, 1914, 0.6 gm. salvarsan was administered intravenously by Dutcher. Since that date up to the present writing, July 10, 1914, the stools have been examined carefully on twenty days without finding balantidia on a single occasion. So far as could be observed the patient was in good general health all the time that he carried the infection.

Archives of Pediatrics, New York

April, XXXII, No. 4, pp. 241-320

28 Early Congenital Bone Lues. J. R. Kuth, Duluth, Minn.
29 Opportunity for Cooperation of Medical Profession in Baby Health Conference Movement. L. A. DeVilbiss, New York.
30 Management of Children Between 1 and 2 Years of Age. R. D. Freeman, South Orange, N. J.
31 Case of Ameba Colitis in Child 5 Years of Age. G. J. Greil, Montgomery, Ala.
32 Case of Congenital Deformity of Both Hands and Both Feet. W. N. Bradley, Philadelphia.
33 Case of Congenital Idiopathic Dilatation of Colon (Hirschsprung's Disease). J. I. Linde and S. B. Kleiner, New Haven, Conn.

Arizona Medical Journal, Phoenix

April, III, No. 4, pp. 6-16

34 Epidemic Cerebrospinal Meningitis. R. N. Looney, Prescott.
35 Place of Laboratory Diagnosis in Medical Practice. W. W. Watkins, Phoenix.

Boston Medical and Surgical Journal

May 13, CLXXII, No. 19, pp. 693-730

36 Care and Treatment of Wounded in European War. R. Derby, New York
37 *Allen Treatment of Diabetes. L. W. Hill and J. L. Sherrick, Boston.
38 Labyrinthitis Following Operation for Atresia. G. Berry, Worcester.
39 Diagnosis and Treatment of Some Rare Fractures. W. P. Coues, Boston.

37. **Allen Treatment of Diabetes.**—Eight patients were treated by Hill and Sherrick on the Allen starvation plan. In every case the patient has become sugar-free and has stayed so, on a reasonable diet which enabled him to hold his weight. Some of these were severe cases of diabetes, young people treated before by the old method and who could not be made sugar-free. When the patient is discharged from the ward he is given written diet slips with two or three menus which he can use on different days, figured out carefully to correspond with his tolerance. The two most important things to remember in this treatment are the following: First, do not raise the diet too quickly after starvation, and pay just as much attention to the protein intake as to the carbohydrate. Second, do not worry if the patient loses weight; it will not hurt him.

There has been no sign of coma in the eight cases treated. The ammonia has always been low, only in one case reading as high as 2.5 gm. per day, which is not at all a high ammonia. In most of the cases it has been very low, usually under a gram a day. This very possibly is due to the low protein intake. There was nothing constant in the appearance or disappearance of the acetone and diacetic acid while on starvation. In one case both disappeared, in others they increased slightly and in others stayed practically the same. No patient has lost more than 5 pounds during his treatment and no patient has gained more than 7 pounds. In most of the cases the weight at discharge was practically the same as at entrance.

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5 *An Improved Method of Suturing Flaps in Amputation of Cervix. A. Heineberg, Philadelphia.
6 Transfusion by Syringe Method. G. M. Dorrance, Philadelphia.
7 Acute Traumatic Displacement of Uterus. E. D. Barringer, New York.
8 Clinical Significance of Amenorrhea in Diagnosis of Tubal Pregnancy. M. Rabinovitz, New York.
9 Rapid Method of Determining Expected Date of Confinement. F. L. Adair, Minneapolis.
10 Problems of Foundling Home. J. Zahorsky, St. Louis.
11 Best Artificial Food Mixtures for Hospital Babies. H. Lowenburg, Philadelphia.
12 Prevention of Infantile Atrophy in Hospitals. E. W. Mitchell, Cincinnati.

3. **Use and Abuse of Pituitary Extract in Obstetrics.**—Norris would never use this without exhausting his abilities in obstetric diagnosis. He considers that healthy multiparas with relaxed birth canals offer the widest and safest fields. For inertia in the early stage of labor, the sleep of morphin, chloral or scopolamin is preferred; in the advanced stages of labor, pituitary extract, he says, often will wisely

keep forceps innocuous. The uterus, after the tumultuous visitation of pituitary extract, usually needs the steadying hand of ergot. Half doses are more often to be employed than full doses.

4. **Method of Closing Abdominal Incision.**—With the method used by Heineberg, cutting of the skin and the introduction of infection from the cutaneous surface by the silkworm-gut sutures is avoided. It is performed as follows: The peritoneum is closed with a continuous suture of plain catgut. Silkworm-gut sutures are then introduced about 1 inch apart at the edge of the incision just beneath the skin surface and include all of the layers of the abdominal wall except the peritoneum. The point of emergence of the suture on one side of the incision must be exactly opposite the point of entrance on the other. Each end of the suture is temporarily held in a hemostatic forceps. The deep fascia or aponeurosis is closed with a chromic-catgut suture, continuous or interrupted. The edges may be made to overlap if desired. The skin edges are apposed by a subcuticular stitch of plain catgut. The ends of the silkworm-gut sutures are then crossed and tied over a strip of iodoform gauze.

5. **Suturing in Amputation of Cervix.**—The following method of suture has been devised and employed by Heineberg with gratifying results. He says it is particularly applied to the single flap and circular amputations and the operation of tracheloplasty described by Bonney, but may also be employed in the double flap amputation. The advantages claimed for it are the accurate approximation of the edges of the flaps with a minimum degree of tension on the sutures. In suturing the flaps after a single flap amputation or tracheloplasty proceed as follows: A chromic catgut suture, the traction suture, is armed at each end with a well curved needle. Each needle is passed through the flap about ¼ inch from its edge; the points of introduction are on the raw surface of the flap ⅛ inch on each side of the median line and the points of emergence are on the vaginal or outer surface of the flap. Both needles are then introduced through the base of the flap at the junction of the raw surface and the mucous membrane of the cervical canal. They are passed through the entire thickness of the lip of the cervix and made to emerge on the vaginal surface about ¾ inch above the edge of the flap and ¼ inch apart. After sufficient traction has been applied to the ends of the suture to invert the flap and bring its edge and base into accurate apposition (avoiding unnecessary tension) the ends of the suture are tied to each other. The other lip is sutured in the same way. The two lips of the cervix which have been separated by the amputation, are drawn together by a mattress suture placed in each side of the cervix about ¼ inch external to the canal. This suture begins in the vaginal surface of the anterior lip about ½ inch above the edge of the flap and emerges on the raw surface of the flap near its base; it is then passed through the lower lip from the raw to the vaginal surface. In a like manner it is passed back through both lips on a line ¼ inch external to the first one. When the two ends of this suture are tied to each other the tension should be sufficient to insure hemostasis and approximation of the edges of the lips. These edges are then held in accurate apposition by interrupted sutures which should be superficially placed and firmly, but not tightly tied.

American Journal of Public Health, Boston

April, V, No. 4, pp. 281-386

13 Science and Public Health. L. K. Frankel, New York.
14 Control of Venereal Diseases by Health Departments. F. H. Baker, Worcester.
15 Reporting and Control of Venereal Diseases. L. Chargin, New York.
16 Evening Clinics for Syphilis and Gonorrhea. M. M. Davis, Jr., Boston.
17 Curse of Narcotism in America. J. Marks, South Hadley.
18 Enforcement of Tennessee Antinarcotics Law L. P. Brown.
19 Independent Attitude of "Dope User"—What Are We Going To Do About It. D McCaskey, Lancaster, Pa.
20 Puerperal Septicemia. W H Guilfoy, New York.
21 Prevention of Odors at City Refuse Disposal Works. R. Hering, New York.
22 Educational Work in Sanitary Food Values in New York City. D. B. Armstrong, New York.
23 Practical Application of "Saltpeter Method" for Determining Strength of Sewages. A. Lederer, Chicago.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

April, II, No. 10, pp. 613-676

24 Pathology of Verruga Peruviana. R. P. Strong and E. E. Tyzzer, Boston.
25 Trichomoniasis of Vagina and Mouth. K. M. Lynch, Charleston, S. C.
26 Climate of Eastern Nicaragua and Honduras, Notes on Health, Death Rates and Character of Country. J. F. LeBaron.
27 *Failure of Emetin Hydrochlorid, but Apparent Success of Salvarsan in Case of Balantidiosis. B. H. Dutcher, San Juan, P. R.

27. **Failure of Emetin, but Success with Salvarsan in Case of Balantidiosis.**—Emetin apparently having failed in this case, on May 5, 1914, 0.6 gm. salvarsan was administered intravenously by Dutcher. Since that date up to the present writing, July 10, 1914, the stools have been examined carefully on twenty days without finding balantidia on a single occasion. So far as could be observed the patient was in good general health all the time that he carried the infection.

Archives of Pediatrics, New York

April, XXXII, No. 4, pp. 241-320

28 Early Congenital Bone Lues. J. R. Kuth, Duluth, Minn.
29 Opportunity for Cooperation of Medical Profession in Baby Health Conference Movement. L. A. DeVilbiss, New York.
30 Management of Children Between 1 and 2 Years of Age. R. D. Freeman, South Orange, N. J.
31 Case of Ameba Colitis in Child 5 Years of Age. G. J. Greil, Montgomery, Ala.
32 Case of Congenital Deformity of Both Hands and Both Feet. W. N Bradley, Philadelphia.
33 Case of Congenital Idiopathic Dilatation of Colon (Hirschsprung's Disease). J. I. Linde and S. B. Kleiner, New Haven, Conn.

Arizona Medical Journal, Phoenix

April, III, No. 4, pp. 6-16

34 Epidemic Cerebrospinal Meningitis. R. N. Looney, Prescott.
35 Place of Laboratory Diagnosis in Medical Practice. W. W. Watkins, Phoenix.

Boston Medical and Surgical Journal

May 13, CLXXII, No. 19, pp. 693-730

36 Care and Treatment of Wounded in European War. R. Derby, New York
37 *Allen Treatment of Diabetes. L. W. Hill and J. L. Sherrick, Boston.
38 Labyrinthitis Following Operation for Atresia. G. Berry, Worcester
39 Diagnosis and Treatment of Some Rare Fractures. W. P. Coues, Boston.

37. **Allen Treatment of Diabetes.**—Eight patients were treated by Hill and Sherrick on the Allen starvation plan. In every case the patient has become sugar-free and has stayed so, on a reasonable diet which enabled him to hold his weight. Some of these were severe cases of diabetes, young people treated before by the old method and who could not be made sugar-free. When the patient is discharged from the ward he is given written diet slips with two or three menus which he can use on different days, figured out carefully to correspond with his tolerance. The two most important things to remember in this treatment are the following: First, do not raise the diet too quickly after starvation, and pay just as much attention to the protein intake as to the carbohydrate. Second, do not worry if the patient loses weight; it will not hurt him.

There has been no sign of coma in the eight cases treated. The ammonia has always been low, only in one case reading as high as 2.5 gm. per day, which is not at all a high ammonia. In most of the cases it has been very low, usually under a gram a day. This very possibly is due to the low protein intake. There was nothing constant in the appearance or disappearance of the acetone and diacetic acid while on starvation. In one case both disappeared, in others they increased slightly and in others stayed practically the same. No patient has lost more than 5 pounds during his treatment and no patient has gained more than 7 pounds. In most of the cases the weight at discharge was practically the same as at entrance.

Bulletin of Johns Hopkins Hospital, Baltimore

May, XXVI, No. 291, pp. 125-210

40 *Medical Treatment of Peptic Ulcer with Especial Reference to Lenhartz' Treatment. G. Blumer, New Haven, Conn.
41 Studies in Pneumonia. R. Cole, New York.
42 Nervous Patient. C. P. Emerson, Indianapolis.
43 *Diagnosis of Mediastinitis. C. P. Howard, Iowa City, Ia.
44 Tertiary Syphilis of Liver. T. McCrae, Philadelphia.
45 *Influence of Dieting on Course of Cancer. P. Rous, New York.
46 Recent Developments in Relation to Study of Tropical Medicine in United States. R. P. Strong, Boston.
47 *Causes of Indigestion; Study of One Thousand Cases. D. Vanderhoof, Richmond, Va.
48 Significance of Distribution of Urea in Body. D. M. Davis, Baltimore.
49 Renal Functional Tests. J. T. Geraghty, Baltimore.
50 Preparatory Treatment of Urologic Operations. F. Hinman, Baltimore.
51 Experimental Hydronephrosis. N. M. Keith, New York.
52 James Buchanan Brady Urologic Institute. H. H. Young, Baltimore.
53 Extramural Psychiatry in Baltimore. W. B. Cornell, Baltimore.
54 Study of Benign Psychoses. A. Hoch, New York.
55 Ethical Aspects of Psycho-Analysis. J. T. MacCurdy, Ward's Island, N. Y.
56 Observations on Embryo Guinea-Pigs. S. Paton, Princeton, N. J.
57 Onset of General Paralysis. C. Ricksher, Kankakee, Ill.
58 Diphtheroid Infections. C. H. Bunting, Madison, Wis.
59 Microbic Cause and Manner of Infection of Poliomyelitis. S. Flexner, New York.
60 Chondrodystrophia Fetalis. W. G. MacCallum, New York.
61 Origin, Growth and Future of Medical Illustration at Johns Hopkins Hospital and Medical School. M. Brödel, Baltimore.
62 Brief Outline of Status of Radium Therapeutics. C. F. Burnam, Baltimore.
63 Hospital Social Service. M. S. Brogden, Baltimore.
64 Visiting Nurses of Baltimore. M. E. Lent, Baltimore.
65 Nursing in Henry Phipps Psychiatric Clinic. E. J. Taylor.

40. **Treatment of Peptic Ulcer.**—A critical study of the literature of the medical treatment of peptic ulcer, particularly the rest and diet cures, Blumer says, suggests certain conclusions. It seems safe to assume that certain types of peptic ulcer show a strong natural tendency to heal if given a fair chance. Ulcers near the pylorus tend to heal badly, while bleeding ulcers, for reasons not entirely clear, seem to heal unusually well. Many ulcers would doubtless heal on the all-important complete rest, plus any of the dietary regimens that have been discussed. Others would equally certainly fail to heal under any form of medical treatment. Originators of diets are apt to adhere too closely to those iets, and tend to become prejudiced against different, but equally efficacious ones. The practitioner, whose sole purpose is to cure his patients, and who need not be distracted from this by attempts to glorify the products of his own cortical cells, should realize that there are good points in all of the diets presented. Each has its advantages and each its drawbacks, and the wise physician is he who will use them as frameworks to be clothed with a dietary structure suitable to the needs of each individual patient.

43. **Diagnosis of Mediastinitis.**—Tuberculosis, Howard found, plays a very important rôle in the etiology of chronic mediastinitis. One or more of the pressure phenomena of mediastinal tumor and aortic aneurysm may be present in this condition. Perez' mediastinal friction was present in two of Howard's cases, and he suggests that it may prove of diagnostic value.

45. **Influence of Dieting on Course of Cancer.**—In the underfed host, as shown by special experiments, Rous found that proliferative processes take place slowly. Wounds require a long time to heal and an inert foreign body, such as agar-agar, is only tardily organized. It is easy to see why the development of tumors dependent on a supporting stroma would be slower in such animals.

47. **Causes of Indigestion.**—In order to determine the proportionate frequency of the various causes of indigestion, Vanderhoof tabulated the clinical diagnosis in a series of 1,000 patients examined by Hutcheson and himself. Appendicitis and cholecystitis were responsible for approximately 35 per cent. of the cases of chronic or recurring indigestion; peptic ulcer and neuroses, each 10 per cent., and carcinoma involving the stomach or bowels, 5 per cent. Ten per cent. of the cases fall into a group including chronic gastritis, visceroptosis, peritoneal adhesions, enterospasm and enterogenous toxemia; while 25 per cent. are included in a group in which the indigestion is a reflex disturbance from affections of the kidneys, lungs, heart, eyes, blood and ductless glands, ears, central nervous system, female pelvic organs, and migraine and chronic infectious diseases. The remaining 5 per cent. classified as miscellaneous, include such conditions as pellagra (eight cases), amebic dysentery (six cases), malaria (five cases), diseased tonsils and cyclic vomiting (in children, respectively, six and five cases), intestinal parasites (four cases), together with instances of diverticulitis, peritoneal tuberculosis, cancer of the pancreas and esophagus, retroperitoneal sarcoma, etc. In those patients in whom more than one lesion existed as a possible reflex cause of indigestion, Vanderhoof tabulated, according to his discretion, the one most likely to be responsible.

Vanderhoof has the operative notes of 145 of the 246 cases of appendicitis, and of 60 of the 117 cases of cholecystitis. Of a total of 363 cases of appendicitis and cholecystitis, 205 were operated on; replies were received from 134. From these letters it is learned that 61 per cent. are well, 28 per cent. are much improved, and 11 per cent. are not improved. Only one patient in the series died as the result of the operation. This was a case of gallstones in a morphin habitué who also had chronic nephritis, and death occurred forty-eight hours after operation, due to suppression of the urine.

Cleveland Medical Journal

April, XIV, No. 4, pp. 253-332

66 Teeth of Primitive Man. T. W. Todd, Cleveland.
67 *Presence in Guinea-Pig's Blood of Natural Antisheep Hemolysin. H. N. Cole, Cleveland.
68 Ohio Public Health Federation. W. M. Bowman, Toledo.
69 Vagotonic Neurosis. B. L. Spitzig, Cleveland.
70 Keratitis Parenchymatosa Relative to Old and New Antisyphilitic Therapy. J. Stotter, Cleveland.
71 Scopolamin in Throat and Nose Operations. M. Metzenbaum, Cleveland.

67. **Presence of Antisheep Hemolysin in Guinea-Pig's Blood.**—Cole found that the blood of the guinea-pig occasionally contains a normal antisheep amboceptor which can be detected by control tubes A and B containing saline, 5 per cent. sheep's red blood cells and 10 per cent. guinea-pig's serum, to be tested, in suitable amounts. If after incubation for thirty minutes at 37.5 C., these tubes show any hemolysis then a certain amount of this immune body is present and unless removed will cause practically all of the serum to be tested to be returned negative to the Wassermann test. As complement is thermolabile and inactive at low temperatures, while amboceptor is thermostabile and active at 0 C. it is possible to get rid of the antisheep hemolysin, present in the guinea-pig serum, by mixing it with washed sheep's red blood cells and allowing them to stand one hour at 0 C. After centrifuging the complement is then ready to be used for the reaction. As a means of lessening the action of this troublesome antibody, Cole advises the use of pooled serum for several pigs.

Journal of Biological Chemistry, Baltimore

April, XX, No. 4, pp. 463-727

72 Organic Phosphoric Acid Compound of Wheat Bran. Occurrence of Inosite Triphosphate in Wheat Bran. R. J. Anderson, New York.
73 Hydrolysis of Phytin by Enzyme Phytase Contained in Wheat Bran. R. J. Anderson, New York.
74 Hydrolysis of Organic Phosphorus Compound of Wheat Bran by Enzyme Phytase. R. J. Anderson, New York.
75 Phytin in Wheat Bran. R. J. Anderson, New York.
76 *Method for Decomposition of Proteins of Thyroid, with Description of Certain Constituents. E. C. Kendall, Rochester, Minn.
77 Urea Content of Human Spinal Fluid and Blood. G. E. Cullen and A. W. M. Ellis, New York.
78 Mercury Derivatives of Aromatic Amines. Contribution to Structure of Primary and Secondary *p*-Aminophenylmercuric Compounds. W. A. Jacobs and M. Heidelberger, New York.
79 Preparation and Melting Points of Higher Aliphatic Hydrocarbons. P. A. Levene, C. J. West and J. Van der Scheer, New York.
80 Animal Calorimetry. Influence of Meat Ingestion on Amino-Acid Content of Blood and Muscle. M. B. Wishart, New York.
81 Id. Rate at Which Ingested Glycocoll and Alanin are Metabolized. F. A. Csonka, New York.
82 Id. Investigation into Causes of Specific Dynamic Action of Foodstuffs. G. Lusk, New York.

83 *Colorimetric Estimation of Uric Acid in Urine. S. R. Benedict and E. H. Hitchcock, New York.
84 *Colorimetric Determination of Uric Acid in Blood. S. R. Benedict, New York.
85 Studies in Uric Acid Metabolism. On Uric Acid in Ox and in Chicken Blood. S. R. Benedict, New York.
86 Nutrition with Purified Food Substances. E. V. McCollum and M. Davis, Madison, Wis.
87 Quaternary Salts of Hexamethylen Tetramin. Substituted Benzyl Halides and Hexamethylen Tetraminium Salts Derived Therefrom. W. A. Jacobs and M. Heidelberger, New York.
88 Id. Monohalogenacetylbenzylamins and Their Hexamethylenetetraminium Salts. W. A. Jacobs and M. Heidelberger, New York.
89 *Presence of Iodin in Human Fetal Thyroid. F. Fenger, Chicago.
90 Alfalfa Laccase. H. H. Bunzel, Washington, D. C.
91 *Human Milk. A. W. Bosworth, Boston.
92 Estimation of Fat. H. Rosenthal and P. F. Trowbridge, Columbia, Mo.

76. **Decomposition of Proteins of Thyroid.**—The details of the method devised by Kendall for alkaline hydrolysis of proteins of the thyroid are as follows: The preparation of finely powdered desiccated thyroid, as fat-free as possible, is added to 90 per cent. ethyl alcohol containing 1 per cent. of sodium hydroxid, in the proportions of 2.5 gm. of thyroid per 100 c.c. of alcohol. The powder is insoluble and settles to the bottom of the container. The alcohol is boiled for forty-eight hours under a reflux condenser. During the heating, ammonia is given off which amounts to about 8 per cent. of the total nitrogen. At the end of this time the alchol has dissolved the greater part of the powder and has a dark brown color. The hot alcoholic solution is now filtered with suction. There is a sticky, tarry residue in the bottom of the flask which contains about 9 per cent. of the total nitrogen, 80 per cent. of the total phosphorus, and 7 per cent. of the total iodin.

The alcohol solution is diluted with water until there is about 75 per cent. of alcohol present, and the sodium hydroxid is neutralized with carbon dioxid or sulphuric acid. If sulphuric acid is used, the alcohol is cooled until the sodium sulphate crystallizes out. This is filtered off and the alcohol is then distilled, leaving a water solution of the split products. If carbon dioxid is used the alcohol is distilled immediately, as the sodium carbonate will not separate satisfactorily. The last traces of alcohol are removed by heating in an evaporating dish on the water bath. The water solution on cooling will solidify to a gelatinous mass if there is much fatty acid present.

The solution is diluted to about 100 c.c. for each 20 to 25 gm. of original thyroid used, and is acidified with 20 per cent. sulphuric acid. This produces a precipitate. The acidification is continued until the addition of more acid ceases to cause a precipitate. The solution is allowed to stand in the cold for several hours, generally over night. The precipitate is filtered without suction and is washed with a little water. This now is the first preparation of *A*. It is allowed to dry on absorbent paper and then is completely desiccated *in vacuo* over sulphuric acid. The filtrate is *B*. It is neutralized with sodium carbonate evaporated to small volume, alcohol is added, and the sodium sulphate crystallized out. The alcohol is distilled off and the resulting solution either desiccated or sterilized for therapeutic use. Fifteen or 20 per cent. alcohol may be used as a preservative.

The dry *A* is extracted with petroleum ether, dissolved in dilute sodium hydroxid, and reprecipitated with sulphuric acid. By warming the solution, after addition of the acid, to about 60 degrees and then cooling to about 10 degrees, the precipitate changes to a sandy, finely divided form easily filtered. *A* in this form is fat-free, and amounts to about 5 per cent. of the total weight of thyroid taken. Its percentage of iodin is about ten times as much as that of the starting material, and for normal glands is equal to about 50 per cent. of the total iodin. The distribution of nitrogen is as follows: *B* conatnis 74 per cent. of the total nitrogen. *A* contains 9 per cent. of the total nitrogen. Alcohol residue contains 9 per cent. of the total nitrogen. Liberated ammonia contains 8 per cent. of the total nitrogen.

83. **Colorimetric Estimation of Uric Acid in Urine.**—The modified technic which Benedict and Hitchcock recommend for the determination of uric acid in urine is as follows: Such a volume of urine as will contain from 0.7 to 1.3 mg. of uric acid (2 to 4 c.c. is usually the right amount) is measured into a centrifuge tube, diluted to about 5 c.c. with water, and treated with 15 to 20 drops of an ammoniacal silver magnesium solution. The contents of the tube are now mixed with a small stirring rod and the tube is centrifuged for one or two minutes. The supernatant solution is then poured off as completely as possible, the tube being inverted, and the inside of the lip touched with a towel or piece of filter paper. The residue in the tube is then treated with two drops of 5 per cent. potassium cyanid solution and the mixture thoroughly stirred with a narrow stirring rod for half a minute. A few drops (0.5 to 0.1 c.c.) of water are added and the solution is again stirred. Two c.c. of the uric acid reagent are then added and the mixture stirred, after which 10 c.c. of 20 per cent. sodium carbonate solution are added, the mixture is washed quantitatively into a 50 c.c. flask at the end of about one-half minute, and diluted to the mark. This solution is compared in a colorimeter with a simultaneously prepared colored solution obtained by treating 5 c.c. of the standard uric acid solution (described earlier in this paper) contained in a 50 c.c. flask with two drops of the potassium cyanid solution, 2 c.c. of the uric acid reagent, 10 c.c. of 20 per cent. sodium carbonate solution, and diluting to the mark at the end of about one-half minute. The standard solution is best set at a height of 15 m.m. in the colorimeter.

This procedure yields quantitative results for pure uric acid solutions and for uric acid added to urine. The figures obtained for uric acid in various samples for urine agree within a small percentage with those obtained by the Folin-Shaffer method. The authors are inclined to regard the new procedure as perhaps more accurate than the titration method of Folin and Shaffer.

84. **Colorimeteric Determination of Uric Acid in Blood.**—The proposed modified procedure for the estimation of uric acid in the blood by Benedict is as follows: Twenty c.c. of blood are added to 100 c.c. of boiling 0.01 *N* acetic acid in a casserole and the mixture is heated to boiling for a moment. The casserole is then removed from the flame and 200 c.c. of boiling distilled water are added. The mixture is then poured on a folded filter, and the residue washed with 50 c.c. of boiling water (heated in the same casserole in which the original coagulation took place). The total filtrate is now transferred to a casserole and boiled rapidly down to a volume of about 25 c.c. This solution is poured into a small flask roughly marked to indicate a volume of 50 c.c. The contents of the casserole are washed quantitatively into the flask with the help of two or three portions of water, heating the water to vigorous boiling, and rubbing the sides of the casserole with a rubber-tipped stirring rod each time. The total volume in the flask should not exceed 50 c.c. after addition of the washings. The turbid solution in the flask is now thoroughly cooled under running water and 2 c.c. of colloidal iron solution are added while the flask is gently rotated. The mixture is then filtered through a small folded filter into a 100 c.c. Jena Florence flask, the residue on the filter being twice washed with distilled water. The filtrate obtained here should be as clear and colorless as distilled water. The solution is now boiled down to a volume of 1 to 2 c.c. (care being taken during the early stage of the process to avoid bumping), then carefully poured into a small centrifuge tube, and the flask washed out with three portions of water (1 to 2 c.c. each), heating each to boiling in the flask and shaking thoroughly prior to transferring it to the centrifuge tube.

The contents of the tube (which should have a volume of from 5 to 10 c.c.) are now cooled and treated with twenty drops of the ammoniacal silver magnesium solution described in the preceding paper. The contents of the tube are mixed thoroughly with the help of a narrow stirring rod, and the tube is then centrifuged for one or two minutes. The supernatant fluid is then poured off as completely as possible, and to the residue in the tube are added one or two drops of 5 per cent. potassium cyanid solution, and the mixture is thoroughly stirred for a moment. A few drops of water are then added and the mixture is again stirred. One or 2 c.c.

of the uric acid reagent of Folin and Denis are then added (1 c.c. if the bulk of the original precipitate was very small, otherwise 2 c.c.), and, correspondingly, 5 or 10 c.c. of 20 per cent. sodium carbonate solution are then added, and the colored solution is washed quantitatively into a 25 or 50 c.c. flask and diluted to the mark with water. This solution is then compared in a colorimeter with the colored solution obtained by treating either 0.5 of 1 mg. of uric acid with 2 c.c. of the uric acid reagent, or 10 c.c. of 20 per cent. sodium carbonate solution and diluting to 50 c.c. at the end of about one-half minute. In conclusion it may be stated that this method appears to give the "free" uric acid in blood. The results obtained for the most part closely parallel those obtained by the Folin-Denis method.

89. **Iodin in Human Fetal Thyroid.**—It is claimed by Fenger that both enlarged and normal sized human fetal thyroids contain iodin at least during the last three months of intrauterine life. Normal sized fetal glands contain relatively more iodin and less phosphorus than enlarged fetal glands.

91. **Human Milk.**—As a result of his studies of human milk the following arrangement is offered by Bosworth as representing the probable condition in which the constituents are present in human milk of average composition. Fat, 3.30 per cent.; milk sugar, 6.50 per cent.; proteins combined with calcium, 1.50 per cent.; calcium chlorid, 0.059 per cent.; monopotassium phosphate (KH_2PO_4), 0.069 per cent.; sodium citrate ($Na_3C_6H_5O_7$), 0.055 per cent.; potassium citrate ($K_3C_6H_5O_7$), 0.103 per cent. and monomagnesium phosphate ($MgH_4P_2O_8$), 0.027 per cent.

Journal of Nervous and Mental Disease, Lancaster, Pa.

April, XLII, No. 4, pp. 193-256

93 Seven Cases of Brain Tumor. S. P. Goodhart and H. Climenko, New York.
94 Combined Psychoses (Analysis of Forty-One Recorded Cases). J. E. Lind, Washington, D. C.

Journal-Lancet, Minneapolis

May 1, XXXV, No. 9, pp. 223-248

95 *Clinical and Roentgenologic Findings in Pulmonary Tuberculosis. H. Z. Giffin and W. D. Sheldon, Rochester, Minn.
96 Pellagra; Report of Cases. G. S. Adams and F. V. Willhite, Yankton, S. Dak.
97 *Some of Rarer Forms of Joint Disease. J. E. Moore, Minneapolis.
98 Vaccine Therapy. H. L. Ulrich, Minneapolis.
99 Mastoid Abscesses; Some Indications for Operation. F. C. Todd, Minneapolis.
100 Case of Foreign Body (Thermometer) in the Bladder. B. A. Bobb, Mitchell, S. Dak.

95. **Clinical and Roentgenologic Findings in Tuberculosis.**—A careful study of 373 cases by Giffin and Sheldon showed that practically every case of pulmonary tuberculosis with tubercle bacilli in the sputum can be diagnosed independently by the roentgenologist. In almost all of those cases in which a Roentgen diagnosis was positive when the sputum was negative, a review of the histories has corroborated the Roentgen findings. In a considerable number of patients a diagnosis seems entirely impossible by clinical methods although the roentgenologist reports positive findings. These include so-called early cases, healed cases and diffuse tuberculosis. It would seem that a careful study of stereoscopic plates of the chest will show evidences of tuberculosis as early as the author can at present be positive of its existence by any other method. A keener sense of perception is developed through the visualization of lesions and roentgenology has been a stimulus to physicians in perfecting their skill in physical diagnosis. The information obtained from the negative report of a skilful roentgenologist may be of very great assistance in general medical and surgical diagnosis. Finally, the authors emphasize that trustworthy conclusions can be drawn only by one who has had a considerable experience in the reading of stereoscopic plates. The roentgenologist, not the roentgenogram, makes the diagnosis.

97. **Some of Rarer Forms of Joint Disease.**—Moore discusses caries sicca, hydrops articuli, Charcot's disease, or spinal arthropathy and hemophiliac joint.

Medical Record, New York

May 15, LXXXVII, No. 20, pp. 799-840

101 Medical Aspects of Cancer. L. D. Bulkley, New York.
102 Speech Elementary Sounds. A. L. Benedict, Buffalo.
103 Early Diagnosis of Streptococcic Sore Throat, and Effect of Vaccines in Its Treatment. R. R. Mellon, Ann Arbor, Mich.
104 *Two Cases of Depressed Nasal Deformity Resulting from Submucous Operation.* W. W. Carter, New York.
105 Case of Panophthalmia Occurring During Pneumonia. R. L. Pitfield, Philadelphia.
106 New Measuring Board for Infants. R. D. Moffett, New York.
107 Urethral Clamp for Postoperative Urinary Incontinence, Devised and Made by Patient for His Personal Use. A. L. Wolbarst, New York.

Michigan State Medical Society Journal, Grand Rapids

May, XIV, No. 5, pp. 251-308

108 *Septic Factor in Three Plagues. W. J. Mayo, Rochester, Minn.
109 Backward Child. F. Allport, Chicago.
110 Some Phases of Sympathetic Ophthalmia. G. M. Waldeck, Detroit.
111 *Intestinal Toxemia. E. L. Eggleston, Battle Creek.
112 Differential Diagnosis Between Functional and Organic Heart Murmurs with Especial Reference to Life Insurance. C. H. Johnston, Grand Rapids.
113 Extent of Insanity and Feeblemindedness and Their Causes in Michigan. A. M. Barrett, Ann Arbor.
114 Case of Mediastinal Tumor (Hodgkin's Disease). J. G. Van Zwaluwenburg, Ann Arbor.
115 Case of Cardiospasm with Dilatation. G. Van Rhee, Ann Arbor.
116 Case of Cystadenoma of Kidney Mistaken for an Ovarian Cyst. W. F. Seeley, Ann Arbor.
117 An Epidemic of Weil's Disease. H. H. Cummings, Ann Arbor.

108. **Septic Factor in Three Plagues.**—That the important rôle of associated septic organisms in the three most widespread plagues of mankind—syphilis, tuberculosis and cancer—is not generally appreciated, is the keynote of Mayo's paper. He says that much of our conception of the primary lesions of syphilis is based on appearances due not to the spirochete alone but to associated septic organisms. Because of the lack of hardness in the base, a hardness due to sepsis, not to syphilis, the diagnosis of chancre of nonvenereal origin is apt to be missed in these days of cleanliness and antisepsis. The diagnosis should rest on microscopic evidence, the finding of the spirochete in the chancre and later by serologic evidence rather than on the gross appearance of the secondaries, the accentuation of which is due to sepsis and therefore in clean people may not be a prominent feature. The importance of a correct early diagnosis in the prevention of systemic infection cannot be overestimated. If this great opportunity is missed, early diagnosis will at least enable careful curative treatment.

Most patients afflicted with tuberculosis do not die from the disease but from the associated sepsis. The surgeon must use great care in operations on pure tuberculous lesions to prevent secondary infections with other organisms and not drain on account of the danger of subsequent infection, unless mixed infection is present. Much of the cachexia of cancer is due to associated sepsis and much of the pain comes from septic infection. Cleanliness and antisepsis give great relief. The high mortality following radical operations for cancer of the large bowel and rectum is mainly due to sepsis and may be reduced one-half by two-stage operations. As much may be said in advanced cancer of the cervix when the preliminary cauterization with the actual cautery, especially the Percy method, followed by a complete hysterectomy, give greater promise of cure with a smaller mortality. Cancers of the surface of the body covered with a sloughing material and surrounded by an extensive inflammatory zone should be destroyed with the actual cautery, and when the induration has disappeared the entire area may be removed with plastic repair of the defect.

111. **Intestinal Toxemia.**—In the treatment of this condition Eggleston states that their efforts must be directed chiefly toward limiting the putrefactive processes of the intestinal tract. This can be accomplished in five different ways: 1. The selection and ingestion of food that is freed from contamination with putrefactive bacteria. 2. The proper preparation of the food for prompt digestion. 3. The selection of a menu that will not furnish an excess of protein material. 4. By preventing abnormal stasis of the intestinal contents.

5. By controlling the intestinal flora so that the putrefactive bacteria are reduced.

New Orleans Medical and Surgical Journal

May, LXVII, No. 11, pp. 895-982

118 Enlarged Thyroid; Report of Successful Case of Thyroidectomy. L. Sexton, New Orleans.
119 *Case of Pellagra Treated Successfully with Trisodium Citrate. A. E. Fossier, New Orleans.
120 Technic in Closure of Abdominal Incision. E. D. Martin, New Orleans.
121 Removal of Gasserian Ganglion; II. Ulcer of Stomach; III. Probable Perineal Fistula; IV. Ruptured Bladder. C. W. Allen, New Orleans.
122 Reclaiming Stepchild of Ophthalmology. R. C. Lynch, New Orleans.
123 Use and Abuse of Forceps; Report of Cases. W. D. Phillips, New Orleans.
124 Postural or Attitudinal Disturbances. J. T. O'Ferrall, New Orleans.

119. **Pellagra Treated Successfully with Trisodium Citrate.**—Fossier's patient was given 2 decigrams of cacodylate of soda for twenty-five consecutive days, also daily injections of 1 c.c. of a 10 per cent. solution of trisodium citrate by hypodermic injections. Fever ranged from normal to 102 degrees during the first twenty days of treatment, after which it gradually subsided. The bowels became regular and the skin gradually improved. The mental condition cleared up. At the end of the month the patient was wonderfully improved both physically and mentally and was walking about. When he was discharged at the end of another month all visible evidences of pellagra, the skin lesions, the mental conditions and the gastro-intestinal disorders had disappeared.

New York Medical Journal

May 15, CI, No. 20, pp. 981-1032

125 Treatment for Inoperable Cancer. S. P. Beebe, New York.
126 Relation of Arteriosclerosis to Ophthalmology, Neurology and Surgery. L. F. Bishop, New York.
127 Arteriosclerosis as Seen by Ophthalmologist. W. B. Marple, New York.
128 Field of Surgery in Arteriosclerosis. J. B. Bissell, New York.
129 Epistaxis in Arteriosclerosis. C. E. Perkins, New York.
130 Arteriosclerosis and Control of Uterine Hemorrhage. W. P. Healy, New York.
131 Arteriosclerosis with Relation to Prostatic Operations. T. M. Townsend and J. J. Valentine, New York.
132 Arteriosclerosis in Its Relation to Life Insurance. J. D. Quackenbos, New York.
133 *Emergency Medicine for Soldier. H. H. Seelye, Atlantic Beach, Fla.
134 Relation of Diseases of Nose and Throat to General Practice of Medicine. H. Parrish, Philadelphia.
135 Life Insurance and Laboratory Examination. J. Diner, New York.

133. **Emergency Medicine for Soldier.**—The formula suggested by Seelye for a rapidly efficient anodyne, as one of the items of his first-aid packet, in the form of a tablet or lozenge that could be readily swallowed with a drink of water, or even chewed up and consumed in a dry state, consists of acetanilid 6 grains, morphin ⅙ grain, oil of wintergreen ⅛ grain, and saccharin ⅛ grain.

Pennsylvania Medical Journal, Athens

April, XVIII, No. 17, pp. 501-598

136 Arthritic Neuritis. J. H. W. Rhein, Philadelphia.
137 *Form of Diabetic Coma, Not Due to "Acetone Bodies." J. Rosenbloom, Pittsburgh.
138 Roentgen Ray Examination of Accessory Sinuses. W. F. Manges, Philadelphia.
139 Significance of Pain in Lower Back and Legs from Orthopedic Standpoint. D Silver, Pittsburgh.
140 Two Cases of Traumatic Rupture of Intestines. W. Lathrop, Hazelton.
141 Constipation from Standpoint of Proctologist. C. F. Martin, Philadelphia.
142 Constipation as Factor in Nervous and Allied Disorders. A. C. Buckley, Philadelphia.
143 Constipation in Women. F. C. Hammond, Philadelphia.
144 United States Pharmacopeia and National Formulary. E. O. Francke, Athens.

137. **Diabetic Coma Not Due to "Acetone Bodies."**—The three cases of diabetic coma studied by Rosenbloom, which differed so completely from the modern idea of acidosis as the cause of coma, were all of the severe type, with no tolerance for carbohydrate, and with a restricted protein intake there was no lessening of the glucose output. They were studied for a period which varied from one week to two months. During this time the urine contained a normal amount of ammonia-nitrogen and showed no trace of acetone, diacetic acid or beta-oxybutyric acid. There was no evidence of any kidney pathology. The urine contained excessive amounts of colloidal nitrogen, neutral sulphur and amino-acids. Death occurred in typical diabetic coma.

In the last case studied 200 c.c. of blood were taken shortly before death. Only faint traces of acetone, diacetic acid and beta-oxybutyric acid were found. The nonprotein nitrogen of the blood serum was normal in amount. This case is especially interesting on account of the fact that about fifty hours before death, showers of granular casts were present in the urine. The urine was cloudy, due to the presence of such an enormous number of casts. The frequent inadequacy of the alkaline therapy, Rosenbloom believes, can be explained on the basis of the fact that the acetone bodies are not always the important factors in the causation of the symptoms in cases of diabetic coma, but that considerable attention must be paid to the study of the excretion of amino-acids, polypeptids, and certain unknown substances in this disease.

West Virginia Medical Journal, Wheeling

May, IX, No. 11, pp. 363-396

145 Antecedents of High Blood Pressure and Nervousness. T. A. Williams, Washington, D. C
146 Rights and Duties of Physician in Court. H. C. Hervey, Wheeling.
147 Insanity More Preventable than Curable. L. V. Guthrie, Huntington.
148 Diagnosis of Mediastinal Tumors. J. Schwinn, Wheeling.
149 Laboratory and General Practitioner. S. L. Cherry, Clarksburg.
150 Eclampsia; Report of Cases. C. R. Foutche, Berkeley Springs.
151 County Medical Society. J. E. McDonald, Logan.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal, London

March, XXXIII, No. 127, pp. 1-72

1 Intestinal Stasis. W. A. Lane.
2 Toxic Polyneuritis of Motor Type. J. M. Clarke.
3 Pernasal Operation for Frontal Sinus Suppuration. P. Watson-Williams.
4 Outbreak of Institutional Dysentery Due to Y. Bacillus. R. H. Norgate and I. W Hall.

British Medical Journal, London

April 24, I, No. 2834, pp. 705-748

5 *Method of Treating Compound Fractures of Femur Due to Projectiles A. H. Tubby.
6 Pathology of Ulcer of Stomach, with Indications for Treatment. C. Bolton
7 *Gastric Analysis. T. Heaton.
8 Comparison Between Some Physiologic and Pathologic Conditions. J. Barcroft.
9 Epidemic Cerebrospinal Fever: Place of Meningococcus in Its Etiology. E. C. Hort, C. E. Lakin *and* T. H. C. Benians.
10 Clinical Laboratory Methods in Metabolic Diseases. A. De T. Mouillot
11 Wound Infections; Methods of Various Factors in Treatment. A. E. Wright.

5. **Treatment of Fractures of Femur Due to Projectiles.**—The method used by Tubby is a combination of plaster of Paris and strips of soft iron. The plaster of Paris bandages are rolled on either over flannel bandages or a stockinet garment, and strips of malleable iron. The apparatus is applied under pulley extension and full anesthesia.

7. **Gastric Analysis.**—Heaton maintains that gastric analysis by the ordinary method is not the analysis of the gastric juice, but is rather the analysis of a mixture of this with the remains of the test meal. He points out that if it were known how much of the mixture was meal and how much was gastric juice, both difficulties would disappear, for it would become possible to calculate the actual composition of the gastric secretion. These results he has attained by adding to the test meal some substance at a known concentration, and then estimating the concentration of the substance subsequently in the fluid obtained for analysis. For

this work the substance used has been urea. To an ordinary test breakfast, consisting of toast and a pint of tea, 5.72 gm. of urea are added, making a 1 per cent. solution. The concentration of the urea in the fluid subsequently obtained indicates the degree of dilution by gastric juice which the fluid of the meal has undergone. The conditions in which this refinement of gastric analysis is of value are: In cases in which there is abnormally rapid or abnormally slow emptying of the stomach through the pylorus; and in cases in which an increased or decreased secretion simulates or is indistinguishable from an increased or decreased acidity.

Journal of Royal Naval Medical Service, London

April, I, No. 2, pp. 103-226

12 *Best Method of Treating Wounds Sustained in Action, Especially During Early Period after Their Infliction. W. W. Cheyne, P. W. Bassett-Smith and A. Edmunds.
13 Casualties in Action Between "Pegasus" and "Königsberg." A. J. Hewitt.
14 North Sea Action of January 24. J. R. Muir.
15 Some Experiences in Hospital Carrier. K. H. Hole.
16 Recent Research Relating to Undulant or Mediterranean Fever. P. W. Bassett-Smith.

12. **Method of Treating Wounds.**—Of the substances which the authors tested, boric and salicylic acids, cresol and phenol seem to be the most useful. Cresol and phenol have very considerable activity at a distance both as inhibitory and as destructive agents, and when combined in a wax and lanolin base, go on diffusing for a considerable time. The result is that they prevent the growth of bacteria over a considerable area, and are able also to destroy the ordinary pyogenic nonspore-bearing bacteria over the greater part of that area. The mixture of boric and salicylic acids is more potent in both directions, and, apparently, as evidenced by experiments on guinea-pigs, can prevent the action of spore-bearing organisms also. In some ways, however, this mixture of boric and salicylic acids is not so suitable as the others, especially in that it is not stored up in the same way, but the combination with cresol or phenol pastes seems very efficacious in animals.

Boric and salicylic acids have not acted so well in the form of pastes as in powder. In a paste with lanolin and wax it does not diffuse at all well, and in the experiments on animals the paste with gum tragacanth, which diffuses very well in agar, did not act so well as the powder. The authors, therefore, propose that salicylic and boric acids in equal parts should be used as a powder and thickly dusted over the wounds so far as possible, and that its action should be reinforced by the injection of cresol paste (20 per cent. in lanolin and wax base) into the interior of the wound in various directions.

Journal of Tropical Medicine and Hygiene, London

April 15, XVIII, No. 8, pp. 85-96

17 *Vibrio (Vibrio Kegallensis Cast., 1913) Isolated from Cases of Paracholera. A. Castellani.
18 Spinal Analgesia in Native Practice. A. Y. Massey.
19 An Attempt to Colonize "Millions" in Malay Peninsula, for Antimalarial Purposes. C. Strickland.

17. **Vibrio Isolated from Cases of Paracholera.**—From two cases of clinically cholera-like disease, and from the water of a well near which several cases had occurred, a vibrio was isolated by Castellani which is biologically different from the true *V. cholera.* In a preliminary note, published some time ago, referring to the first case alone, he named it *V. kegallensis cast.*, 1913. Though its pathogenicity has not been completely proved the probabilities are, in his opinion, that it is the cause of certain cases of cholera-like disease, or "paracholera."

Lancet, London

April 24, I, No. 4782, pp. 843-896

20 Wound Infections. (To be continued.) A. E. Wright.
21 Scotoma of Migraine. F. W. Edridge-Green.
22 Some Physical Defects Met with in Raising of an Army. T. Oliver.
23 *Treatment of Gunshot and Shell Wounds (Liquid Glucose and Phenol). H. B. Whitehouse.
24 Brain Abscess in Case of Paratyphoid. R. L. Scott and W. H. Johnston.
25 Case of Hysterocatalepsy. L. A. Weatherly.
26 Roentgen Ray Theater in War Hospitals. J. R. Caldwell.
27 Reinvestigation on Nature of Cellular Elements Present in Milk. R. T. Hewlett and C. Revis.
28 Urinary Calculus in Pelvic Portion of Ureter. J. E. Adams.
29 Treatment of Bacterial Infections of Projectile Wounds. F. F. Burghard and Others.

23. **Treatment of Gunshot and Shell Wounds.**—Adopting Wright's recommendations, Whitehouse treated a series of shell and gunshot wounds of varying degrees of severity by the application of hypertonic saline solution. The results obtained were sufficiently convincing to prove the correctness of Wright's views. At the same time, the degree of lymph lavage produced by a saline solution was not great, and although sepsis diminished and wounds healed the important factor of time was not sensibly diminished. It appeared to Whitehouse, therefore, that even better results were possible by employing a solution of greater osmotic power. He therefore had a solution of liquid glucose containing sufficient phenol to have a strength of 1:80. This solution was applied directly to the wound surfaces and by means of plugs was carried into the recesses of the same. The results quite exceeded his most sanguine expectations. In a few hours sufficient lymph was exuded in each case to saturate the whole of the wool and bandage covering the part. Coincidently the purulent character of the discharge changed, and in a day or two a healthy granulating surface remained. The cases treated by phenolized glucose dressings include severe compound fractures and large lacerated wounds of the extremities, some involving the elbow joint and necessitating excision of the joint. One case of shell wound of the cranium exposing the dura mater and injuring the superior longitudinal sinus was also so treated. All the cases made a rapid recovery and were ready for transfer at the end of seven days.

The routine which Whitehouse now adopts in the treatment of all septic wounds may broadly be expressed as follows: (1) Removal of foreign bodies after location by Roentgen rays and if anatomically possible; (2) application of efficient drainage by enlargement of the wounds of entry and exit, or by fresh incisions into the tissues if required; (3) removal of as much necrotic and contused tissue and blood clot as possible; (4) application of warm hydrogen peroxid (20 volts) to the recesses of the wound if anaerobic infection is suspected; and (5) establishment of profuse lymph lavage by the application of a solution of phenolized glucose on white gauze dressing or gauze plugs.

Quarterly Journal of Medicine, London

April, VIII, No. 31, pp. 191-276

30 *Two Cases of Patency of Ductus Arteriosus. T. W. Griffith.
31 Alterations in Arterial Structure and Their Relation to Syphilis. H. M. Turnbull.
32 Mumps. A. Feiling.

30. **Patency of Ductus Arteriosus.**—The two examples of patency of the ductus arteriosus reported by Griffith to have occurred in patients in whom the affection was recognized during life. One of these succumbed to infective endocarditis and the diagnosis was verified on the postmortem table. In the other the condition was associated with some further anomaly of the great vessels and with a development error which had given rise to cyanosis, for this is a symptom which is not often met with in uncomplicated cases of patency of the arterial duct.

In the fatal case there was found considerable enlargement of the heart, which weighed about 14½ ounces. There was marked hypertrophy without notable dilatation of the right ventricle. There was recent pericarditis, and before the heart was removed there was found on the anterior and left aspect of the pulmonary artery, which was generally dilated, a large bilobed aneurysmal swelling. There was old standing disease of the mitral valve with moderate stenosis of the orifice and both this valve and the aortic segments presented large fungating masses of vegetations. Evidence of recent endocarditis was found at the junction of the two posterior segments of the pulmonary valve. The lumen of the pulmonary artery was almost occluded by a large mass of blood-stained vegetations, which was gently adherent to the walls of the vessel at two situations. One of these was at the anterior and left aspect of the artery, in which there was a double concavity corresponding to the convexity seen from the outside; the other was around the opening of the ductus arteriosus, and into this there projected a conical mass of vegetations so as completely to occlude the aperture. When the ductus was cleared of this it permitted the passage of a No. 9 catheter. The space left for the passage of the blood between the mass of vegetations and the wall of the vessel was probably much greater during life than one might expect from an inspection in the postmortem room, in which the dilating influence of the blood pressure would be absent.

Sei-I-Kwai Medical Journal, Tokyo

April, XXXIV, No. 4, pp. 21-26

33 Causes of Acute Appendicitis; Difficulties Experienced in Diagnosis and Importance of Pulse Examination. Y. Takaki.

Bulletin de l'Académie de Médecine, Paris

April 13, LXXIII, No. 15, pp. 441-456

34 *Meningococcus Suppurative Arthritis. A. Netter and H. Durand.
35 Normal and Pathologic Elimination of Glucuronic Acid. (La glycuronurie; ses variations dans la cirrhose et le diabète.) H. Roger and M. Chiray.
36 Sterilization with Formaldehyd Fumes from Evaporation of Trioxymethylene. (Stérilisation par les vapeurs de formol en chirurgie de guerre.) G. Gross.
37 *Wounds of the Eyes in War. (Blessures oculaires de guerre.) A. Darier.

34. **Meningococcus Arthritis.**—Netter and Durand have found a suppurative joint trouble a comparatively frequent complication of cerebrospinal meningitis, second in frequency only to otitis media, but it has always terminated favorably. The joint regained its normal functioning in every case but recovery seemed to be hastened by injection of antimeningococcus serum directly into the joint. In the last seven years this suppurative arthritis was encountered in 11 of their 200 cases of cerebrospinal meningitis. Various joints were affected and sometimes several at one time. In 5 cases no microbes could be cultivated from the joint or revealed by the microscope. In this group the arthritis developed later than in the others. In one infant of 10 months meningococci were found in the feet processes while the meningitis was at its height. As this subsided under intraspinal serotherapy, the toe processes subsided also, but then pus accumulated in one ankle. No meningococci could be cultivated from it however, and the suppurative process promptly disappeared at a single injection of antimeningococcus serum. In one child 1 year old there were eleven separate suppurative processes. In four infants the suppurative processes were in fingers and toes; in 2 of these purpura was the first sign of anything wrong. The ages of the patients ranged from 10 months to 30 years. The meningitis terminated fatally in 4 cases. In addition to the above 11 cases they report the death of a 3 months' babe from a primary meningococcus arthritis in the shoulder; the meninges were apparently normal.

This meningococcus arthritis resembles very much the primary or secondary arthritis set up by pneumococci. They both are more benign than joint trouble of other origin, but the meningococcus affection has the advantage of a specific medication, namely, direct local injection of antimeningococcus serum.

37. **Wounds of the Eyes in War.**—Darier comments on the great increase in the number of cases in which the eyes have been wounded since the close fighting in trenches. The head being most exposed is more often hit than the rest of the body and he has already encountered a hundred cases of injury of the eyes, many of them requiring extensive plastic operations on the lids or to provide a support for an artificial eye. He urges a special colored tag for a soldier whose eye has been injured so that he can be rushed with the minimum of delay to an eye specialist. First aid should be with a soft bandage, an injection of morphin if the pain is severe and, if there is much destruction of tissue, two or three doses of antitetanus serum.

Presse Médicale, Paris

April 22, XXIII, No. 17, pp. 129-136

38 Electric Devices to Aid in Treatment of the Wounded. (Quelques conseils sur le réglage, la distribution et l'application du courant électrique dans le traitement des blessés.) T. Nogier.
39 Peripheral and Radicular Innervation of the Integument. (Quatre schémas destinés à servir de guide pour l'étude des lésions des nerfs périphériques; de la moelle épinière et de ses racines.) M. and Mme. Dejerine.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 10, XLV, No. 15, pp. 449-480

40 *Impressions in the German Military Hospitals. (Eindrücke aus deutschen Kriegslazaretten.) T. Kocher.

40. **Impressions in German Field Hospitals.**—Kocher remarks that "against the dark background of the war, there stands out in bright relief the care of the wounded, wonders of aid and Christian sympathy on a scale beyond anything ever experienced or anticipated." In these thirty pages Kocher sketches the whole organization and working of the care of the wounded and sick in Germany as he has made his rounds of investigation, and he urges the authorities in his own country, Switzerland, to make it possible for young physicians and surgeons to study in the arena of war. The unprecedented opportunity now afforded is a university course in up-to-date war surgery. The principles of surgery, he adds, are the same under all circumstances, but the primary healing of wounds in peace scarcely prepares a surgeon for work in war. He comments in particular on the way in which the chief of the German army medical service has always kept in close touch with the leading surgeons and clinicians throughout the country, attending all their national annual meetings and keeping posted as to their work and achievements. He called them in at once as consultants in this war, and their advice, as *Generalärzte*, has had the greatest influence on the whole organization of the medical service. The wounded and sick, friends and foes alike, wherever Kocher went (Freiburg, Strassburg and Frankfurt) he remarks in conclusion, have such confidence that everything possible is being done for them that this is proving an important factor in the cure.

Deutsche medizinische Wochenschrift, Berlin

April 22, XLI, No. 17, pp. 485-516

41 Rosenbach's Tuberculin in Surgical Tuberculosis. Hackenbruch.
42 *Roentgen-Ray Treatment of Chronic and Subacute Eczema. F. M. Meyer.
43 War Wounds of the Nose and Sinuses, Throat and Larynx. (Schussverletzungen der oberen Luftwege.) R. Kafemann.
44 *Stereoscopic Roentgenography for Localization of Foreign Bodies. Brauneck.
45 *Acute Osteomyelitis of Vertebrae after Wound in War. (Wirbelosteomyelitis nach Schussverletzung.) A. Wolff.
46 Mineral Waters of Foreign Source and the German Practitioner. (Der deutsche Arzt und die Heilquellen des feindlichen Auslandes.) H. Kionka.
47 *When a Country is at War, Can a Minor Operation, To Remove Physical Disability for Military Service, Be Imposed on a Man without His Consent? (Das Recht und die Pflicht zu operativen Eingriffen an Heerespflichtigen in Kriegszeiten.) F. R. Brewitt and Ebermayer.

42. **Roentgenotherapy of Chronic Eczema.**—Meyer has been much impressed with the complete cure of chronic or subacute eczema of long standing in thirty-eight cases treated with hard Roentgen rays filtered through 1 mm. aluminum. The rays are of the 10 or 11 Wehnelt standard of hardness and the filter is applied close to the tube, thus avoiding the secondary rays generated when the filter is close to the focus. The distance of the field from the tube was always 20 cm. Some of the patients had more than one patch of eczema. None proved refractory and the cure was sometimes realized with a few exposures, others requiring a course of weekly exposures until a total dosage of 2.5 full doses had been given.

In three cases the eczema was of ten years' standing, in the others from seven weeks to five years. The chief advantages of roentgenotherapy for this purpose are the short time required; four weeks are ample, the regularity of the effects attained and the fact that this treatment scarcely interferes at all with the patient's occupation. He warns that a syphilitic skin affection is liable to be mistaken for eczema. This occurred in two cases brought to him for Roentgen treatment after failure of other measures. He applied the Wassermann test which elicited a vigorous reaction. and the "eczema" healed up completely in a week under two injections of a mercurial salt after having resisted all other measures for five years. In a second case the supposed "eczema" of the palm yielded to the Roentgen exposures after proving refractory to salves and other measures for four years. There was a violent reaction, however, to the final dose. The "eczema" recurred after a brief interval, and this time became aggravated under roentgenotherapy. The Wassermann test then applied gave positive findings and specific treatment was at once instituted. He is convinced that the hard rays are biologically more active than the soft rays. In conclusion he warns against any attempt at roentgenotherapy during the acute phase of eczema.

44. **Stereoscopic Roentgenography.**—Brauneck deplores that so few practitioners have mastered the comparatively simple technic for stereoscope roentgenography. It is especially instructive in localization of metal foreign bodies and for all kinds of topographic investigation, especially with fracture of the pelvis and of the bones in the hand and foot. The stereoscopic Roentgen picture is alive, he remarks, in comparison to the dead, flat picture.

45. **Osteomyelitis of the Spine after a Wound in War.**—Wolff quotes Henle's compilation of five cases of acute osteomyelitis with a traumatic origin, and Grisel's compilation in 1903 of fifty-six cases of acute infectious spondylitis. He then describes a rapidly fatal case in a soldier, the first symptoms of the osteomyelitis not developing until six weeks after a scrap from a shell had been driven into his neck. The bleeding was arrested at once by ligation of the artery injured, the surgeon being close at hand, and three weeks later the scrap of metal was extracted through the esophagus. Three weeks after this signs of spinal meningitis developed and the man died within a month. Necropsy showed that the third cervical vertebra had been injured by the scrap of shell and osteomyelitis had developed with local meningitis. The case teaches that foreign bodies should never be removed through the esophagus wall, opening up a portal for infection. It also emphasizes the necessity for treating every case in which there is a suspicion that a vertebra has been injured with extension or a plaster cast. If the scrap of shell had been removed in this case from an opening in the rear, provision for drainage, etc., would have been realized and the infectious process might have been warded off.

47. **Right to Perform Operations to Remove Physical Disability.**—Brewitt relates a number of instances of wounded soldiers who are developing into helpless cripples because they refuse to permit the minor operations that would give them a useful limb instead of the present contracted member doomed to atrophy. The men are unable to estimate the fate they are preparing for themselves and he thinks that in such cases, as also for men who have been exempted from military service on account of some physical defect easily remedied by a minor operation, the military authorities should be able to interfere. He refers in particular to hernias, benign tumors, excrescences, etc. If any mishap should occur the family would be entitled to a pension just as if the man had fallen on the field. He calculates that from 30,000 to 40,000 men might thus be added to the ranks who are otherwise eminently fitted for military service. Ebermayer discusses the question from the legal standpoint, regarding it as extremely doubtful whether the authorities have any right to interfere in this way with a man's right to his own person, even during the exigencies of war.

Medizinische Klinik, Berlin

April 18, XI, No. 16, pp. 443-468

48 *Cardiovascular Disturbances in Soldiers and Constitutional Inferiority. (Herzbeschwerden bei Kriegsteilnehmern und konstitutionelle Gesichtspunkte bei der Beurteilung derselben.) R. Schmidt.
49 Improvised Arrangements for Sterilization of Clothing, etc., in the Field. (Improvisation von Dampfdesinfektionsapparaten und Entlausungsanstalten im Felde.) P. Uhlenhuth and Olbrich. (Entfernung von Kleiderläusen durch Schwefeldämpfe. E. Kuhn.
50 *Typhus. (Kriegstyphus.) H. Boral. Concluded in No. 17.
51 Trauma and Infectious Complications. (Trauma und Wundinfektionskrankheiten.) E. Schepelmann.
52 *Treatment of Open Wounds. (Zur Wundbehandlung.) Wilcke.
53 *Diabetes Following Trauma. Rings.

48. **Heart Disturbances with Constitutional Physical Inferiority.**—Schmidt discusses this subject as it bears on military efficiency, reviewing the signs which permit recognition of heart disturbances resulting from physical inferiority. In testing the heart functioning in dubious cases, it is very instructive to have a control person of about the same build, with normally functioning circulatory apparatus, go through the exercises with the one being tested. The pulse before and after the exercises, the count, the quality, the blood pressure, the respiration rate, the apex beat, the complexion, perspiration, etc., are all useful in estimating the functional capacity of the cardiovascular apparatus. The interval before the previous status returns is especially instructive.

50. **Typhus.**—Boral has had 760 cases of typhus in his charge in the eastern seat of war. In 24 cases actual psychoses developed; in 15 they were of the megalomania-paranoia type, in 3 kleptomania. Deafness is an important symptom in typhus, he remarks, as in no other disease does deafness come on so regularly with the high temperature. The slow pulse was in striking contrast to the fever in nearly every case. The mortality was 9 per cent. exclusive of the moribund cases. A number of patients developed pyemic processes during convalescence and they often took the form of cold abscesses. Those in the abdominal walls simulated lipomas; sometimes the abscesses ran a symptomless course. Acute otitis media developed in 31, parotitis in 15, orchitis in 10, pneumonia in 39, and in 36 there was intestinal hemorrhage, and a relapse in 24 cases.

52. **Treatment of Open Wounds.**—Wilcke has found it of great advantage to pour into jagged wounds liquid paraffin in which iodin has been incorporated in the proportion of 1 to 300 parts. When the wounds are cleansed he uses a salve with 1 part each of iodin and potassium iodid to 100 parts of petrolatum.

53. **Diabetes Following Trauma.**—In the case reported severe neurasthenia developed a few months after the man had fractured the sixth, seventh and eighth thoracic vertebrae. The neurasthenia was accompanied by symptoms of diabetes. They continued a progressive course and when the man died, thirteen years after his fall, the courts accepted the traumatic origin of the diabetes and awarded an indemnity to the heirs.

Wiener klinische Wochenschrift, Vienna

April 15, XXVIII, No. 15, pp. 387-410

54 Injuries of the Eyes in War. (Kriegsverletzungen des Auges.) R. Possek.
55 Vaccine Therapy of Typhoid. J. Sladek and S. Kotlowski.
56 *Charcoal in Cholera. F. Groak.
57 Report of Field Prosector. (Bericht über die Tätigkeit der Prosektur des Schles. Krankenhauses in Troppau während des ersten Kriegshalbjahres mit bes. Berücksichtigung der Infektionskrankheiten.) A. Materna and R. Penecke.
58 New Orthopedic Department of Innsbruck Surgical Clinic. H. v. Haberer.

56. **Charcoal in Treatment of Cholera.**—Groak gave each cholera patient 5 gm. of animal charcoal (a heaping tablespoonful) four times a day. The suspension, with a little brandy, was sipped slowly. The charcoal treatment was supplemented with subcutaneous infusion of from 1 to 2.5 liters a day of a 1.5 per 1,000 salt solution. The mortality dropped to 12 per cent. under this treatment.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 11, XXXVI, No. 29, pp. 449-464

59 *Gastric Psychoneuroses. G. Calligaris.

April 15, No. 30, pp. 465-480

60 *Helminths in Bile Ducts. (Ascaridi nei dotti biliari.) A. Dalla Valle.

April 22, No. 32, pp. 497-512

61 *Alcohol in Surgery. A. Pellegrini.

59. **Gastric Psychoneuroses.**—Calligaris thinks that clinicians are too apt to regard the majority of stomach affections too exclusively as symptomatic, while the neurologists regard

them exclusively as purely functional and of psychic origin. The treatment of these two extremes is exactly opposite, and woe betide the nervous dyspeptic who falls into the hands of a clinician who disregards the nervous element or, vice versa, the patient with organic trouble whose precious time is wasted on psychotherapy alone. Calligaris classifies gastric neuroses in two types: the false, symptomatic or secondary, and the true, the essential or primary neurosis of the stomach. The history of this latter type is scarcely fifty years old. The symptomatology is rich indeed. The kaleidoscopic picture is the chief point in differentiation. Generally there are both sensory and motor symptoms. Vomiting may occur in this type but the possibility of hematemesis of purely nervous origin is generally denied. Calligaris is convinced that this denial should not be too absolute, but he does not believe in the possibility of an exclusively gastric neurasthenia.

The examination of the stomach should be done with extreme caution and tact to refrain from suggestion that may add new features to the clinical picture. Organic trouble should be suggested more readily if the patient is near or past 50. A purely functional stomach trouble may lead to an organic affection, thus setting up a grave vicious circle. There is no doubt that certain patients with true gastric neuroses have recovered under courses of dieting and medicines, but there is also no question of doubt that hosts of others have had their gastric neurosis bred into a chronic and possibly an incurable phase by such measures.

He has had opportunity to study fifty individuals with true gastric neuroses. It was easy to trace the relation between cause and effect, between emotions, phobias, autosuggestion and suggestion from others, and the development of the neurosis, to follow day by day and hour by hour the course of the symptoms from the stomach as they paralleled the fluctuations in the moods and emotions, and to note the regular transient aggravation of the neurosis after certain happenings and the rapid and progressive improvement under psychotherapy. Disturbances in secretion, motor functioning and sensation, in patients growing more and more debilitated, disappeared surprisingly fast under appropriate psychotherapy, and the downward trend toward mental anorexia was thus arrested. Some of these patients had long complained of loss of appetite with inability to eat, and had lost from 20 to 33 pounds, but under eight or ten weeks of isolation and psychotherapy, they regained strength and almost their former weight. The outcome confirmed the correctness of the diagnosis and treatment; if treatment had been on the basis of an assumed organic trouble, the old disturbances would have been kept alight or fanned into a flame. It is in these cases that "local treatment kills; general treatment saves." Both Dubois and Dejerine believe that fully four-fifths of dyspeptic disturbances are of purely nervous origin. Even reducing this figure by one-half, leaves a large number of which this is certainly true. They owe their origin to some emotional stress or to suggestion from within or without, and mostly to suggestion from some medical treatment which fixes the gastric neurosis still more firmly in the patient's mind, by the questions asked, repeated examination, restrictions in the diet, and polypharmacy. "There are stomachs for the chemists and the radiologists and also for the psychologists, the psychiatrists and the neurologists," he adds, "Nature presents her phenomena with a thousand aspects but man is liable to see only the one aspect which his eyes have been specially trained to see."

60. **Helminths in the Bile Ducts.**—Dalla Valle gives an illustration of five adult ascarides found plugging three of the bile ducts at necropsy of a man of 26 who had gradually become insane after the age of 18. Others were found in the intestines. The only complication noted had been the stasis of bile. There was no tendency to cholelithiasis.

61. **Alcohol for Surgical Use.**—Pellegrini extols the advantages of alcohol for sterilization of the hands, etc., especially the denatured alcohol now supplied the hospitals in Italy. The denaturing is done with benzol and picric acid, and the product thus obtained has several points of superiority over alcohol denatured by other methods.

Pediatria, Naples

April, XXIII, No. 4, pp. 241-320

62 *Treatment of Kala-Azar. A. Castellani.
63 *Is Epinephrin Present in the Blood at Birth? (Sulla presenza di adrenalina nel sangue del neonato.) S. Cannata.
64 Protective Principles in the Milk of Two Cows Immunized against Tuberculosis. (Sulla presenza di principi difensivi nel latte di animali immunizzati contro la tubercolosi.) L. Sivori.
65 Total Symphysis of Extremely Enlarged Heart in Child. (Condizione cardiaca non commune.) M. Ponticaccia.
66 Secondary Infections in Tuberculous Children and Their Extreme Gravity for the Prognosis. G. Repaci.

62. **Tartar Emetic in Kala-Azar.**—Castellani reports remarkable benefit, amounting to a practical cure, in a coolie from India with advanced kala-azar, treated with a mixture of tartar emetic, potassium iodid, and sodium salicylate and bicarbonate. He was also given about every tenth day an intravenous injection of the tartar emetic, alone or with Fowler's solution, but Castellani is convinced that the tartar emetic was predominantly responsible for the benefit derived.

63. **No Epinephrin in the Blood of the Newly Born.**—Cannata obtained constantly negative results in thirty-one healthy babes whose serum was tested for epinephrin by various technics.

Policlinico, Rome

April, XXII, Medical Section, No. 4, pp. 145-192

67 *Salvarsan in Treatment of Syphilis Associated with Internal Disease. (Controindicazioni ed indicazioni all'uso dell'arsenobenzolo nelle malattie mediche da sifilide.) T. Pontano. To be continued.
68 Clinical Experiences with Atophan. P. Biffis.
69 *Action of Animal Charcoal on Peptic Digestion. M. Divella.

April, Surgical Section, No. 4, pp. 157-208

70 *Prognosis and Treatment of Tuberculosis of the Tongue. L. Stropeni.
71 Forking Ureter with Movable Kidney. G. Becchérle.
72 *Injection of Alcohol into the Spinal Ganglia. A. Chiasserini. Commenced in No. 1.

67. **Contraindications for Salvarsan.**—Pontano affirms on the basis of considerable personal experience and study of the literature, that, if the heart and kidneys are sound, salvarsan is very slightly toxic. This may be accepted also even if the heart and kidneys are not quite sound, but anything pathologic is perfectly compensated. Symptoms of toxic action have been noted in about 15 or 20 per cent. of the cases in which it has been systematically given. The symptoms are slight and transient and testify to a peculiar individual intolerance, not to any special nature of the disease or its localization. Syphilitics with internal disease, whatever its nature, can be given salvarsan without fear provided the heart and kidneys are sound. Insufficiency on the part of either of these organs is an absolute contraindication, and insufficiency of the liver, a relative contraindication.

69. **Influence of Animal Charcoal on Peptic Digestion.**—Divella experimented with bone charcoal mixed with the mucosa taken fresh from the stomach of a pig or dog, and ground in a mortar. He found that the digestion was materially accelerated by the charcoal admixture in a proportion of 22.05 per cent. Larger or smaller proportions were far less effectual. In the presence of a poisonous substance, strychnin, arsenic, etc., digestion proceeded much more effectually with the charcoal than without. He ascribes its favorable influence to adsorption of the poisons and of ferments, etc., that tend to inhibit digestion. The conclusion seems evident, he adds, that animal charcoal will prove beneficial in all cases of gastric dyspepsia, abnormal fermentations or bad breath, in short, whenever digestion in the stomach is deranged from any cause.

70. **Tuberculosis of the Tongue.**—Stropeni comments on the remarkable rarity of tuberculous lesions in the tongue. It seems to indicate unusual resisting power on the part of the tongue tissues. Hence the prognosis is bad when a secondary process develops in the tongue as this is a sign that the general resisting power is at a low ebb. In twenty-nine cases on record the tuberculous lesion in the tongue was mistakenly assumed to be cancer, and extensive mutilating operations were done. Rapid and fatal recurrence followed in most of the cases, and signs of tuberculosis in other organs showed that the tongue affection had been a secondary process, the

system already undermined. A primary tuberculous process in the tongue is a different matter, and a complete cure is the rule after thorough excision of the focus. Curetting and cauterization are inadequate; in advanced cases, roentgenotherapy may be preferable to excision. The focus should always be removed also with a secondary lesion unless the lungs are involved. When this is the case, roentgenotherapy is better. Stropeni gives references to recent literature on tuberculosis of the tongue, including fourteen Italian and fourteen German works and only three from English literature.

His attention was called to the subject by a case of apparently primary tuberculosis of the tongue in a robust man of 33. A hard, whitish bunch developed on the frenulum, where it joins the base of the tongue. It soon ulcerated and was very painful. After two months of household remedies, he entered the hospital where mercurial treatment was instituted, notwithstanding the negative Wassermann, and the lesion was repeatedly cauterized. Under three months of this the ulceration grew worse and worse, the neighboring glands became involved and suppurated, with fistulas. Then the tuberculin skin tests and inoculation of guinea-pigs with pus gave positive reactions but no tubercle bacilli could be detected in the sputum. Treatment was then changed to merely rinsing out the mouth with mild boric acid solution, and the angry lesions retrogressed to some extent, one fistula healing. The ulcerations on the tongue were then exposed to the Roentgen rays and benefit was apparent almost at once. Eight sittings were given in the course of a month, under which the tongue affection healed smoothly and completely. The patch of swollen glands in the neck was then excised as the suppuration kept up. The cure was then complete and there have been no signs of recurrence during the six months since and the man feels entirely well.

72. **Injection of Alcohol into the Spinal Ganglia.**—Chiasserini concludes his monograph with references to 159 articles, including several in The Journal. He has studied the technic on dogs and on cadavers, and declares that it is possible and practicable to interrupt, by injection of alcohol into the spinal ganglion, the reflex arc responsible for a number of morbid syndromes and, in particular, for the gastric and intestinal crises in tabes. The technic is simple and easy, he declares, and it promises to be entirely harmless. Even if the alcohol does not get inside the ganglion, and the injection is thus merely periganglionic, it probably will block the nerve to a certain extent. He gives illustrations of the surgical anatomy and the technic he found best adapted for the purpose.

Riforma Medica, Naples

April 17, XXXI, No. 16, pp. 421-448

73 *Serodiagnosis and Serotherapy of Disturbance from Loss of Balance in Ductless Gland System. (Sul valore dei sieri citotossici nelle malattie da alterato equilibrio endocrino.) G. Costantini and L. Sivori. Commenced in No. 15.
74 Cysts in the Pancreas. L. Eustachio.
75 *Oxygen and Carbon Dioxid in the Blood in Uremia. (L'ossigeno e l'anidride carbonica nel sangue degli uricemici.) L. Preti.

73. **Cytotoxic Serums in Treatment of Exophthalmic Goiter, etc.**—This experimental research was done at the Genoa university clinic in charge of Maragliano. It was based on the fact that in animals treated systematically with the extract of an organ their serum acquires in time a destructive action on the cells of the organ in question. Cytotoxic serums were thus obtained for the thyroid and suprarenals. It seems a plausible assumption that a serum endowed with a destructive action on the thyroid would aid in reducing symptoms caused by excessive functioning on the part of the thyroid. Test tube experiments in this line gave encouraging results: mixing with 1 c.c. of the patient's serum the amount of cytotoxic serum known to neutralize the minimal lethal dose of thyroid extract, then adding one drop of an alexin and incubating for an hour, then adding the minimal lethal dose of thyroid extract and one more drop of alexin and incubating for another hour. This mixture then injected into a rabbit's vein promptly kills the animal if the patient in question is suffering from hyperthyroidism, while it does not harm the animal if there is hypothyroidism. The mechanism of this is explained and the method suggested as useful for differential diagnosis.

Also in treatment of hyperthyroidism, the cytotoxic serum would have the effect of binding the excess of thyroid principles in the blood. Its action would thus be analogous to that of the serum of thyroidectomized animals, now often used in treatment of exophthalmic goiter. The blood of these thyroidectomized animals contains all the principles which normally are neutralized by the thyroid gland. Cytotoxic rabbit serum in treatment of exophthalmic goiter was given a trial at the clinic in 1911 in one case, but the supply of the prepared serum ran out in two weeks, and the attempt had to be abandoned. All the evidence so far obtained speaks strongly in favor of the possible utilization of cytotoxic serums in exophthalmic goiter. The other ductless glands can scarcely be considered in this respect as they cannot be spared from the body like the thyroid.

75. **Oxygen and Carbon Dioxid in the Blood in Uricacidemia.**—Preti recalls that an aqueous extract of liver tissue has the power to destroy uric acid added to it in the presence of oxygen. The uric acid is reformed if the oxygen is replaced by carbon dioxid. Preti and other Italian workers have reproduced these phenomena with artificial circulation through the liver, first oxygenating the blood, to destroy the uric acid, and then reforming it with the aid of carbon dioxid. Preti's further research has shown that both the phenomena are the work of ferments in the blood. Animals breathing air with much carbon dioxid eliminate larger quantities of uric acid through the kidneys, and the uric-acid content of the blood is higher. Recent investigation of twelve persons with attacks of gout, tophi and high uric-acid content in the blood, showed from 5 to 18 per cent. oxygen in the blood, the majority approximating the lower figure. The carbon dioxid content was never found less than 50 per cent., the range being from 51 to 76 per cent. In the healthy controls, the oxygen range was from 16 to 23 per cent. and the carbon dioxid from 38 to 44 per cent. These findings throw light on the familiar experience that gout affects persons with defective oxidations owing to a sedentary life, muscular inanition, depression of the heart action, etc.

Ugeskrift for Læger, Copenhagen

April 15, LXXVII, No. 15, pp. 577-596

76 Extraction of Tack Two Years in Lung. (Et Tilfaelde af Corp. alien. pulmon. c. abscessu mediastini.) K. Schäffer.

April 22, No. 16, pp. 597-636

77 *Continuous Extension in Treatment of Sciatica. I. Svindt.

77. **Extension Treatment of Sciatica.**—Svindt has applied extension, as for a fracture of the neck of the femur, in 26 of the 41 cases of sciatica in his service in the last five years. The youngest patient was 22, the oldest 74, and the extension relieved them of their pain and in most cases led to a permanent cure. The extension was kept up for about three weeks, and was followed by massage and hydrotherapeutic measures for another week or ten days, to complete the cure. The average stay in the hospital for the 41 patients was forty-four days, but extension was applied only in the severest cases. In one case since there was recurrence of the sciatica about six weeks afterward, but another course of extension treatment at home cured him and there has been no trouble since. Only one other patient reports recurrence of the sciatica; it has returned several times but always in such mild form that it has not interfered with his occupation. Svindt's experience on the whole has thus been very favorable with this extension method of treating sciatica. The technic is so simple that any practitioner can apply it. The relief from pain and the permanent benefit are probably due to the complete rest of the limb and the musculature. It is not probable that the extension applied is enough to really stretch the nerve. He begins with a weight of 4 kg., gradually increasing it to 7 or 8 kg. The last trace of pain generally subsides when a weight of 7 kg. is reached (15.4 lb.) He gives a sedative the first day or so if absolutely required, and follows with salicylates for a few days, with a fever diet and then a full diet.

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THE PHENOLSULPHONEPHTHALEIN TEST IN CHRONIC NEPHRITIS [*]

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Ever since Schlayer and his co-workers elaborated their system of differential renal function testing, much attention has been given to the subject of kidney function tests in nephritis. Clinical requirements demand not only that such a procedure shall be simple and easily available for clinical employment, but that it shall be of demonstrated accuracy; otherwise it may lead to faulty deductions in prognosis and possibly to blunders in diagnosis. However attractive it may appear from the pathologic point of view, to estimate the degree to which the different anatomic elements of the kidney are involved, it would seem that the mixed type of nephritis encountered clinically practically disposes of the attempt to weave fine diagnostic distinctions about the reactions secured by differential function tests. With clinical nephritis of the simplest type, there is enough general structural involvement to make conclusions as to special function involvement hazardous.

Many considerations render the study of renal function in detail an extremely complex problem. To base conclusions on differential tests assumed to reveal glomerular, tubular or vascular impairment necessarily implies that we can test the individual functions of the kidney, and presupposes a much more definite knowledge of the physiology of that organ than we in fact possess. Moreover, it is only in acute fatal cases of nephritis that anything like pure system involvement—glomerular or tubular—exists. As the matter stands, the only methods available for clinical usage are such as furnish information regarding the total function of the kidneys—their general excretory capacity.

THE PHENOLSULPHONEPHTHALEIN TEST

Tests for estimating general renal efficiency have consisted mainly of the introduction of various dye substances, which are excreted more or less completely in the urine. General agreement accords first place among these tests to the phenolsulphonephthalein test of Rowntree and Geraghty,[1] introduced in 1910. It was at first employed most extensively in surgical cases, especially with reference to the question of operations on the urinary organs. It is equally applicable to medical cases, but the results are considerably more difficult of interpretation, and it is only recently that sufficient observations have accumulated to give it a fixed status in this class of cases. The harmlessness and simplicity of the test render it an easily available clinical procedure. In its application to nephritis Rowntree and Geraghty have shown from careful clinical and pathologic studies that the amount of phenolsulphonephthalein excreted varies as a general rule in rough ratio with the extent of the renal damage. In fatal uremia only traces or none at all of the dye appear in the urine for the two-hour interval, while in mild and moderate grades of nephritis the amount recovered from the urine may be normal or nearly so. These authors assert further that in cardiorenal cases when the heart is failing and the kidneys become passively engorged, a low phenolsulphonephthalein output is observed at first, rapidly rising subsequently as the heart action improves and venous engorgement subsides. An increase in the phenolsulphonephthalein index in such a case may be the earliest sign of restoration of compensation and represents a favorable prognosis. *Per contra,* a low excretory capacity, persisting after clinical evidence of cardiac improvement, points to a severe nephritis and a less favorable prognosis.

The authors of the test emphasize the purely empiric character of the investigation, owing to our lack of sound information as to the physiology of urinary secretion, and while attaching a high degree of prognostic value to its findings when positive and clear cut, they warn against too general prognostic interpretation, inasmuch as the test yields information only so far as renal efficiency or inefficiency can be estimated, whereas death may occur in chronic nephritis from many other factors, cardiac and cerebral in particular, concerning which the test gives little if any information. This method in common with other function tests must in consequence be considered always in conjunction with general clinical study; otherwise prognosis is made dependent on laboratory technic, which is always a hazardous alternative.

Coincidently with the investigation of the functional adequacy of the kidneys in nephritis, attention has been directed to the estimation of the incoagulable or nonprotein nitrogen of the blood as offering a valuable means for securing information of prognostic value. Studies of this nature are particularly to be desired in the investigation of nephritis, since urine analysis cannot reveal the stage of accumulation of waste products, an accumulation that may vary from almost normal figures to enormous increase in uremia.

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[*] Read before the Chicago Society of Internal Medicine, March 22, 1915.

[1] Rowntree, L. G., and Geraghty, J. T.: Jour. Pharmacol. and Exper. Therap., 1910, i, 579; ibid., 1911, ii, 393; The Phthalein Test—an Experimental and Clinical Study of Phenolsulphonephthalein in Relation to Renal Function in Health and Disease, Arch. Int. Med., March, 1912, p. 284.

THE INTERPRETATION OF RESULTS

Although the technic for nonprotein nitrogen determination offers no difficulties to the well-equipped chemical laboratory, it is so technical and time-consuming as to be beyond the capabilities of the clinician for routine employment. Studies of renal efficiency by the phenolsulphonephthalein test consequently offer great advantage as to convenience and ease of application. The chief drawback attaching to this method of estimating kidney permeability lies in the interpretation of results, for it is quite conceivable that the rate of elimination of a foreign dye substance may bear no definite relationship to the efficiency of the kidneys in excreting metabolism products.

Cases have been reported (Foster,[2] Baetjer[3]) in which the phenolsulphonephthalein test gave practically normal figures, yet fatal uremia resulted shortly after the tests were made.

Rowntree, Fitz and Geraghty[4] assert that phenolsulphonephthalein is excreted solely by the tubular epithelium, a contention supported by Potter and Bell[5] from their studies of experimental tartrate nephritis and it is conceivable that these reported cases may have been nephritis of predominantly glomerular type.

Such excretory paradoxes emphasize the loopholes for error in any general interpretation, however firmly the rule may appear to be established by results. The same thing is true of nonprotein blood nitrogen estimations in nephritis, a number of instances being reported in the literature, of uremia developing in the face of normal waste nitrogen content. However obscure and against the rule such exceptions may be, they serve to establish a discount against too rigid interpretation of any routine investigation. They serve to accent our ignorance of the exact nature of uremia and leave open the question of whether so profound a disturbance of the entire metabolism as results from severe nephritis there may not be some other factor, in addition to the action of urinary retention bodies, which is as yet unappreciated.

As the nonprotein index in the blood is admittedly the most reliable criterion of renal efficiency, it is desirable to correlate the elimination of phenolsulphonephthalein with the actual retention of nitrogenous waste in the blood. This has been undertaken by Frothingham, Fitz, Folin and Denis[6] in experimental uranium nephritis. The results of their investigation demonstrate that in general the tests parallel each other as indicators of renal function, varying from normal during the course of the nephritis and returning to normal as the nephritis heals, with this important difference, that, whereas the amount of phenolsulphonephthalein excreted shows the renal function at the time of the test, the amount of nonprotein nitrogen of the blood measures the accumulating difference between the production of waste nitrogen bodies in the metabolism and the quantity excreted.

The time element — the duration of the nephritis — becomes, therefore, an important factor in the result. It has long been known that during the course of any nephritis there are certain periods when the urinary constituents are normal in amount as compared with the intake, and other periods when they may be increased or decreased. These functional eccentricities of the kidneys, imperfectly understood, may have a bearing on some of the inconsistencies of excretory tests. Frothingham and Smillie[7] carried out a series of observations on the nonprotein nitrogen and the phenolsulphonephthalein excretion in seventy-seven cases of chronic nephritis. From their charts it appears that the phenolsulphonephthalein excretion steadily falls as the amount of nonprotein nitrogen of the blood increases, phenolsulphonephthalein practically ceasing to appear in the urine when the nonprotein nitrogen reaches 100 mg. (four to five times normal). In a moderate number of cases a surprisingly low phenolsulphonephthalein output was shown for which no cause could be found, either from clinical findings or laboratory tests. They consider it fair to state that a considerable individual variation above and below the expected average may occur with the phenolsulphonephthalein test for which no explanation can be found.

In the main, the relation between nonprotein values and clinical findings is fairly exact. No nonnephritic cases showed accumulation. All their cases with nonprotein nitrogen above 50 mg. per 100 c.c. of blood gave clinical evidence of severe nephritis. In some of these cases the phenolsulphonephthalein excretion was unexpectedly good. On the whole, however, the nonprotein nitrogen varied inversely with the excretion of phenolsulphonephthalein in the urine. The accumulation of waste nitrogen seemed to be much less influenced by cardiac and other complicating factors than was phenolsulphonephthalein excretion.

Agnew[8] undertook studies to determine what relation, if any, existed between phenolsulphonephthalein output and nonprotein nitrogen of the blood. He concludes that, in general, cumulative phenomena occur only when the excretion of phenolsulphonephthalein falls below 40 per cent. in two hours. This is in keeping with the observations of Folin, Denis and Seymour.[9] Tileston and Comfort[10] found that cases of chronic nephritis without symptoms of uremia showed normal or only moderate cumulative signs, the uremic cases, on the contrary, yielding a great increase in the nonprotein blood nitrogen, the excretion of phenolsulphonephthalein being roughly proportionate to the degree of retention.

Rowntree, Fitz and Geraghty[4] show that chronic passive congestion of the kidneys gives rise to reduced secretion of phenolsulphonephthalein in the urine, without marked increase in the incoagulable nitrogen of the blood, and Agnew[8] has been able by this contrast to separate cardiac from chiefly renal involvement. Foster[11] points out that while this holds true

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2. Foster, Nellis B.: Functional Tests of the Kidney in Uremia, Arch. Int. Med., October, 1913, p. 452.
3. Baetjer, William A.: Superpermeability in Nephritis, Arch. Int. Med., June, 1913, p. 593.
4. Rowntree, L. G.; Fitz, R., and Geraghty, J. T.: The Effects of Experimental Passive Congestion on Renal Function, Arch. Int. Med., February, 1913, p. 121.
5. Potter, A. C., and Bell, E. T.: Am. Jour. Med. Sc., 1915, cxlix, 236.
6. Frothingham, Jr., C.; Fitz, R.; Folin, O., and Denis, W.: The Relation Between Non-Protein Nitrogen Retention and Phenolsulphonephthalein Excretion in Experimental Uranium Nephritis, Arch. Int. Med., September, 1913, p. 245.
7. Frothingham, Jr., Channing, and Smillie, Wilson G.: The Relation Between the Phenolsulphonephthalein Excretion in the Urine and the Non-Protein Nitrogen Content of the Blood in Human Cases, Arch. Int. Med., October, 1914, p. 541.
8. Agnew, J. Howard: Comparative Study of Phenolsulphonephthalein Elimination and Incoagulable Nitrogen of the Blood in Cardiorenal Diseases, Arch. Int. Med., March, 1914, p. 485.
9. Folin, Otto; Denis, W., and Seymour, Malcolm: The Non-Protein Nitrogen Constituents of the Blood in Chronic Vascular Nephritis (Arteriosclerosis) as Influenced by the Level of Protein Metabolism, Arch. Int. Med., February, 1914, p. 224.
10. Tileston, Wilder, and Comfort, C. W.: The Total Non-Protein Nitrogen and Urea of the Blood in Health and in Disease as Estimated by Folin's Methods, Arch. Int. Med., November, 1914, p. 620.
11. Foster, Nellis B.: Uremia. The Non-Protein Nitrogen of the Blood, Arch. Int. Med., March, 1915, p. 356.

for lesser grades of circulatory embarrassment, it might not prove a reliable criterion in the severest types of purely circulatory disturbance in which nonprotein nitrogen accumulation is not infrequently observed.

Thayer and Snowden[12] make an important contribution from the clinical side. These authors attempt to throw some light on the clinical value of the phenolsulphonephthalein test in prognosis by comparing their findings with the test and the anatomic alterations revealed at necropsy in fifty-four cases of nephritis of different types. In no instance of grave nephritis did they fail to find a material reduction in phenolsulphonephthalein excretion. Their study reveals a progressive diminution in the output of the dye, which they consider so definite as to give the test a considerable prognostic value. They conclude that there occurs in severe chronic nephritis a uniformly low phenolsulphonephthalein excretion, which, as a rule, in those instances not interrupted by an acute terminal process, decreases steadily up to the onset of uremia and is nearly or wholly suppressed from a day or two to a month before death. Acute terminal uremic developments which may be unsuspected clinically are common, and here a sudden diminution in the elimination of phenolsulphonephthalein may come on in cases in which the percentage previously excreted is not so low as to appear alarming. In not a single instance, and, indeed, not once in all their studies for five years, have these authors met with a good phenolsulphonephthalein excretion in a case of severe chronic nephritis. Their observations with the test in twenty cases of chronic passive congestion conform with the findings of Rowntree and Fitz,[13] and they consider it clear that chronic passive renal congestion alone can result in marked reduction of phenolsulphonephthalein excretion, which may return to normal as cardiac compensation is reestablished.

VALUE OF THE TEST

The foregoing discussion briefly reviews the main facts brought out by investigation that furnish our warrant for the employment of this test in clinical practice. Accumulating clinical observation and the fact that results with the phenolsulphonephthalein test in the main parallel the estimation of nonprotein nitrogen of the blood encourage the belief that the findings are, within certain limitations, reliable for prognostic purposes. In interpreting its findings it is to be remembered that the test shows the functional power of the kidneys at the time of observation and for the dye only. The influence of passive renal congestion from cardiac causes is to be borne in mind. If excretory values are low and cardiac insufficiency be not present as a complicating factor, we should not disregard the warning simply because clinical indications of uremia are absent, and, on the other hand, if symptoms indicate danger, their significance is not to be neglected merely because phenolsulphonephthalein excretion approaches normal. Some experience with this test as a routine clinical procedure covering a period of two years encourages me to believe that it constitutes a method of value in nephritis and high pressure states generally. In my observations I have found that excretory response to the test is on the average higher in ambulatory cases tested in office practice than in hospital cases, and this irrespective of the clinical condition present. This is, perhaps, as might be expected, owing to the more general functional decline in patients confined to bed. A comparison of age with functional response would appear to confirm the observation of Miller and Cabot[14] that the excretion of phenolsulphonephthalein grows progressively less with advancing years.

It is extremely doubtful whether the phenolsulphonephthalein test can be employed to any important extent in the diagnosis of nephritis. Routine observations with the method show an output well within normal requirements in the majority of cases classed as nephritis with good cardiac compensation. The latency of chronic nephritis is well known and the inadequacy of clinical observation alone accurately to gage the degree of renal impairment is granted by all experienced observers. Any method that will assist the clinician in obscure cases to arrive at a more accurate knowledge of the organic inroads on kidney secreting structure will consequently be welcomed. It may happen that the renal efficiency test may occasionally prove of service in this direction. Rowntree[15] cites the case of a boy who prior to the function test was looked on as having diabetes insipidus, but who, after one phenolsulphonephthalein test, was recognized as having advanced nephritis verging on uremia, a diagnosis substantiated at necropsy two weeks later.

Recently the test was instrumental in contributing to the better diagnosis of a case under my own observation.

The patient, a young man of robust habit and healthy appearance, complained of cardiac palpitation and vague precordial distress, with a sense of lassitude. Physical examination revealed a moderate degree of cardiac hypertrophy; blood pressure, systolic 160, diastolic 90. The urine was normal in all respects except for the presence of a very few hyaline casts. The best excretion index that could be secured with the phenolsulphonephthalein test was 30 per cent. in two hours. This was interpreted as giving a more serious aspect to his clinically latent nephritis than would have been indicated on clinical and urinary grounds alone.

Perhaps the most important service this test may render us in nephritis is in the diagnosis of obscure uremic conditions. During the course of any case of chronic nephritis there may arise gastro-intestinal, cerebral, visual or other functional disturbances, the uremic nature of which may be strongly suspected. Decisive action is necessary, although clinical grounds may be insufficient for a definite judgment regarding the uremic nature of the symptoms. Without loss of valuable time the phenolsulphonephthalein test will reveal promptly the degree of uremia present.

A type of case that often presents some difficulties in diagnosis is so-called cardiorenal disease. In this condition the blood pressure ranges high, cardiac sclerosis is a prominent factor, and urinary signs signify that the kidneys share in the general arterial involvement. It is not always an easy matter to estimate the relative importance of the cardiac and renal moieties and to decide whether to regard the case from one or the other angle. I have found the renal sufficiency test of assistance in elucidating this point.

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[12] Thayer and Snowden: Am. Jour. Med. Sc., 1914, cxlviii, 781.

[13] Rowntree, L. G., and Fitz, R.: Studies of Renal Function in Renal Cardiorenal and Cardiac Disease, Arch. Int. Med., March, 1913, p. 258.

[14] Miller, Richard H., and Cabot, Hugh: The Effects of Anesthesia and Operation on the Kidney Function, as Shown by the Phenolsulphonephthalein Test, Arch. Int. Med., March, 1915, p. 369.

[15] Rowntree, L. G.: Am. Jour. Med. Sc., 1914, cxlvii, 352.

My experience with the test would lead me to believe that it may prove of service when employed at periodic intervals in keeping track of the progress of a case and as a more accurate means of watching the effect of treatment than we possess by other means. By applying the test at intervals, the rise and fall in function index forms an interesting and possibly significant chart. How far we can trust the indications gained by routine observation of this sort is difficult to state, but there appears no obvious reason why we should not place some dependence on them. Rowntree and Geraghty report that if surgical patients were given careful preoperative treatment when the elimination of the phenolsulphonephthalein was dangerously low, a marked improvement in elimination occurred. It has been my experience that a steady improvement in the kidney function index may be expected following treatment in cases of nephritis not too far advanced. Mere rest in bed, strict diet and regulation of elimination will ordinarily effect such a result. In advanced cases bordering on uremia, it is rare to observe an improvement following treatment.

A point of possible importance to bear in mind in the interpretation of defective function response in chronic nephritis is the occasional existence of subacute exacerbations. The progress of many cases of chronic nephritis is punctuated by the occurrence of acute inflammatory phases resulting from intercurrent infections or severe kidney irritation. During the existence of such a phase, the excretion of phenolsulphonephthalein may be temporarily reduced much below average figures for the case, and for the time being low values may be observed. A case coming under observation at such a time may appear more grave when viewed from the standpoint of function response than might be justified by the subsequent progress of the case.

General experience with the test has verified the observations of Rowntree and Geraghty regarding the influence of passive renal congestion in interfering with phenolsulphonephthalein excretion. As is well known, contracted kidney cases and cardiorenal diseases generally are, during the later stages, to a large degree cardiac cases, the element of cardiac failure entering to a very important degree into the disabilities of the terminal stage. Broken cardiac compensation as a rule interferes very considerably with the excretion of phenolsulphonephthalein, values well below the safety line appearing with fair constancy along with cardiac edema in chronic nephritis and high blood pressure states. Unless we accord to the cardiac factor its due importance in this regard, we may be led erroneously to anticipate the advent of uremia, and to address our measures of treatment to the kidneys instead of to the heart as they should be.

In view of the clinical vagaries of chronic nephritis, which are notorious, it is perhaps not surprising to meet with glaring inconsistencies in the clinical application of this test. Cases that appear very grave on general clinical and urinary grounds are often found to yield a normal or nearly normal function index, and conversely, instances that appear to be on safe functional ground when judged by purely clinical findings, yield surprisingly low values when kidney efficiency is tested out. Just how we are to strike a balance between the two is often difficult to judge, but in view of the long recognized fact that it is impossible to predict accurately by clinical study alone what course the disease will take in development, it would appear that we should at least accept the results of function study as a qualifying factor in prognosis. It is surprising how long certain cases of chronic nephritis will survive after the excretion of phenolsulphonephthalein is reduced to a mere trace or suppressed entirely; weeks and even months may go by before death ensues after this apparently terminal phenomenon has appeared. No absolute prognosis as to duration of life appears possible on functional findings alone, because we do not yet know how low the phenolsulphonephthalein excretion may go and yet be compatible with a renal efficiency sufficing to maintain life, provided the diet and hygiene of the patient are properly adjusted (Arnold[16]).

DIET THERAPY AND THE TEST

Diet therapy in nephritis is dominated by the principle of protein restriction. Our practice in this important item has hitherto been governed by empiricism without scientific control. So far as can be seen at the present time, the only reliable criterion available for regulating the protein intake in nephritis is the determination of the amount of waste nitrogen retention by blood analysis. That it is possible to reduce the urea waste nitrogen of the blood to normal or less is abundantly proved by the feeding experiments of Folin, Denis and Seymour,[9] and of Frothingham and Smillie.[17] Cases with a considerable retention require a restriction of protein, and by this means a return to normal may be brought about provided the azotemia be not too severe. In case of outspoken uremia no marked reduction of the azotemia results from a protein-free diet. Folin, Denis and Seymour state that the response to the phenolsulphonephthalein test can be reduced by one-half before abnormal accumulation of nonprotein nitrogen takes place in the blood. This estimate is in keeping with Agnew's statement that at 40 per cent., phenolsulphonephthalein excretion, cumulative phenomena appear in the blood. These observations may justify the assumption in clinical practice that when the response to the phenolsulphonephthalein test drops to 40 per cent. or lower in two hours, waste nitrogen blood accumulation is present.

Routine observations with this readily available test may thus enable us to appreciate with greater precision than is possible from clinical observation alone the point (40 per cent. or lower) where positive protein restriction becomes necessary. When the functional index is normal or nearly normal in contracting kidney, it is difficult to understand what harm will result to the kidneys, provided no inflammatory element is present, from a protein ration based on physiologic requirements. Aided by periodic functional testing to check up the functional integrity of the kidneys, and with our present knowledge of physiologic food requirement for good nutrition, the diet therapy of chronic nephritis may be adapted with reasonable safety, if not perhaps with accuracy, and with due realization that in so chronic and widespread a disease general nutrition and kidney conservation should stand on a parity.

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[16] Arnold: Boston Med. and Surg. Jour., 1914, clxx, 601.

[17] Frothingham, Jr., Channing, and Smillie, Wilson G.: A Study of Different Nitrogenous Diets in Chronic Nephritis, Arch. Int. Med., February, 1915, p. 204.

THE ORGANIZATION AND ACTIVITIES OF THE INTERNATIONAL HEALTH COMMISSION

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The International Health Commission was created in June, 1913, by the Rockefeller Foundation as its first important act after receiving a charter from the state of New York. Its expressed object is "the promoting of public sanitation and the spread of the knowledge of scientific medicine." Its immediate task contemplates the extension of measures for the relief and control of uncinariasis or hookworm disease to those countries and peoples where conditions invite. This phase of the work is already well under way. Active measures are in progress in several territorial units in the Southern States, Central America, the West Indies, British Guiana and Egypt; and other countries have signified a desire to have the cooperation of the International Health Commission.

In order to give a clear understanding of the plan of organization and the working methods of this commission, I shall review briefly the work of the Rockefeller Sanitary Commission, from which it has developed as a natural outgrowth. The Sanitary Commission was organized by Mr. John D. Rockefeller in 1909, and was granted a million dollars to be used during the ensuing five years toward the eradication of hookworm disease in the United States. This commission was composed of thirteen of the country's leading educators, physicians and business men.

Mr. Wickliffe Rose, executive secretary of the Southern Education Board and general agent of the Peabody Education Fund, was selected as administrative head of the work, with the title of "administrative secretary." Mr. Frederick T. Gates, adviser to Mr. Rockefeller and the chairman of the General Education Board, was elected chairman. As scientific secretary, Dr. Charles W. Stiles was elected. It was Dr. Stiles who discovered the presence and prevalence of the disease in the South, identified as its cause a new type of hookworm termed by him the *Necator americanus*, and did much to center the attention of the profession, the public and Mr. Rockefeller's advisers on its baneful influences.

Mr. Rose opened offices in Washington in January, 1910, and proceeded to organize the work. For obvious reasons the state board of health of each state was selected as the agency through which to undertake the work. Where a health department was weak, he endeavored to aid in strengthening it; and where there was no health department, he sought to help lay the foundations for developing one. The work was always conducted in the name of the state board of health. In each of the eleven states with which the commission cooperated, a state director was appointed by the joint action of the public health authorities and the commission. This director became a state official—an officer of the state department of health—clothed with the powers and responsibilities of the office. He was the organizing and directing head of all the work in the state for the eradication of hookworm disease, and was responsible for results. He worked under the general supervision of the state department; he made reports quarterly to the state department, and through the department to the commission. Under his direct supervision was a force of from three to six physicians as field directors, each of whom was generally assisted by one or two trained microscopists.

On this general plan, eleven states invited and received the cooperation of the commission: Virginia, North Carolina, Georgia, South Carolina, Tennessee, Arkansas, Mississippi, Alabama and Louisiana between February and November, 1910; and Kentucky and Texas in 1912. The remainder of 1910 and a portion of 1911 were devoted to perfecting the state organizations, to educational propaganda, to survey work and to the trying out of working methods.

In beginning the work, the cooperation of the physicians, the educational forces and the press, was successfully enlisted. The educated public soon began to regard hookworm disease as a problem worthy of serious consideration. Working methods were gradually developed on the basis of actual experience under varying conditions. These methods have been growing more systematic, the efforts more intensive and the results more definite.

The work in the beginning consisted very largely in visiting physicians, interviewing them, demonstrating the microscopic technic in recognizing the disease and urging physicians to make examination for its presence a routine in their practice. The essential facts about the disease were prepared in popular form and distributed broadcast over the state—through the newspapers, in leaflets and pamphlets, and by means of circular letters. Lectures to public audiences and to schools were employed as a feature of the work at this stage. Soon, the laity was ready to aid in determining the extent to which the disease prevailed; that is to say, specimens for examination could be obtained with reasonable effort. The state militia was first examined; then children in the various orphanages. When these investigations were completed, and the results published, it was found feasible to have the children in the public schools examined. Squeamishness began to disappear, and the work of examining schoolchildren proceeded rapidly. A group, usually of two hundred children or more, taken at random, was examined in every county, or at least in representative counties. Thus, the prevalence and distribution of the disease were established with reasonable accuracy. In visiting the schools, the field directors also inspected the sanitary conditions of the country homes on the roadside and recorded their observations in each instance.

At this juncture stock was taken. It was observed that the survey work was highly satisfactory. The disease, varying in different localities within the state, and even within the counties, was found to exist among from 10 to 90 per cent. of the people. But the record of cures was small. In December, 1910, Mississippi tried, for indigent cases, the dispensary plan that had worked so successfully in Porto Rico for the whole of the infected population. It was found to be very satisfactory in that state, not only for the indigent cases but also for all who applied. It was soon tried elsewhere, and speedily became in all the states the agency around which the chief activities centered. It provided a means for effective teaching by actual demonstration.

It is still employed in some of the states, which are completing the work with aid from the International Health Commission, in a few of the heavily infected counties that could not be reached before Dec. 31, 1914, which marked the close of the five-year period covered by the pledge of Mr. Rockefeller to the Rockefeller Sanitary Commission. A summary of the work through the dispensaries and through the increased activities of the physicians showed, by the close of 1914, that much had been accomplished in the South in treating the disease. The number of persons microscopically examined was 1,273,850. The number of persons treated and reported was 694,516. Of these, 254,118 were treated and voluntarily reported by the physicians, and 440,398 were treated in the dispensaries.

This county dispensary work was very strenuous for the field forces. County appropriations for local expenses had to be secured; the campaigns had to be advertised and wide interest quickly created. A different dispensary had to be reached every day, often by traveling over miles of rough roads; frequently from one to five hundred people had to be examined during a day, lectured to, the infected ones treated and a complete and accurate record of each case kept. This meant that the men were often out on the day's task from dawn until long after nightfall; but they loved the work and were convinced that the effort was well worth while.

It is to be doubted whether an equal number of men could have been found who would have worked harder, or more effectively, or who would have accomplished so much in the same length of time by any other methods. The population and area to be reached were vast; the funds, and consequently the size of the working force, were limited; the time for completing the work was short, and the county dispensary campaigns were consequently limited to periods ranging from four to eight weeks—a time insufficient to develop satisfactorily the sanitary features of the campaign along with the curative measures.

Obviously, the next development in methods called for a lengthening of the working period; limiting the area to be worked, intensifying the efforts and putting into effect both curative and sanitary measures. This modified plan of work was very satisfactorily developed, during the closing months of the Rockefeller Sanitary Commission, in four states which were early in completing the dispensary work. It was completed before the close of 1914 in twelve communities, each having an area averaging in size about 32 square miles and an average population exceeding a thousand persons (1,025, to be exact). The working period in each averaged about four months. The work was done by a field director, who in some cases was aided by a microscopist. Of the 12,305 persons in the twelve communities, 75 per cent. were examined; 26 per cent. were found infected and 94 per cent. of these were treated and probably cured. Twenty-nine per cent. of them were actually reexamined after a course of treatment and all found to be cured.

In these communities there were 2,257 homes. Fifty per cent. of them in the beginning had no kind of privy, and the privies found were seldom, if ever, sanitary. When the work closed 88 per cent. of the homes had privies, and 81 per cent. of these were of an improved type. The work in some communities was, of course, further advanced than in others. In fully a third of the communities, every family had an improved privy and every person found infected was treated.

This intensive work deserves special attention. It has been carried one step farther by British Guiana. In selected areas of British Guiana there are two staffs at work, under the general supervision of the Surgeon-General. The sanitary staff, financed by the government, enters the area first. It gives the area a thorough cleaning, attends to drainage and enforces compulsory measures requiring every family to provide itself with an approved privy, and to use it and care for it. When this staff completes its work, it moves into another area, leaving in the district a sufficient number of sanitary inspectors, employed permanently by the government, to insure the maintenance of the improved sanitary conditions.

The second staff is medical, and is financed through the local government by the International Health Commission. It aims at the examination of every person in the working area, and the treatment until cured of every person found infected.

This plan insures the development of adequate public health agencies by the government, which will carry on the work after the commission has transferred its aid to other fields, and leaves to the local health organization the enforcement of public health laws. The agency supported by the commission can be temporary, and it depends for its success on the voluntary cooperation of the people. Both staffs have made admirable successes, and there seems much promise that a wider application can be given to the plan.

Return for a moment to the Rockefeller Sanitary Commission. Its work, per se, accomplished gratifying results. Many observers state, however, that the by-products have greatly exceeded in importance the tangible results with hookworm disease as published in the records of the state boards of health, and in the reports of the Rockefeller Sanitary Commission. To give an illustration of this: It was found that the available funds for public health work in the eleven Southern States where aid was given amounted in 1910 to $216,195, and in 1914 to $392,364, an increase of 81 per cent. in less than five years. Of course, the commission does not assume the credit for this increase; it was wholly voluntary on the part of the states. It may be, however, that the states were stimulated by the spirit which pervaded the forces devoted to measures for the control of hookworm disease. At any rate, the health departments are much stronger now than they were five years ago.

One incidental service of the Rockefeller Sanitary Commission to the public health agencies of the South and nation has been the bringing into the field of public health work of nearly one hundred carefully selected young physicians. The large majority of them have acquired a love for the work and an appreciation of the broad possibilities it offers for service to man. More than a third of them have chosen it as a career, and have identified themselves with the state or national public health organizations.

The Rockefeller Sanitary Commission accomplished all that was expected by its founder, and paved the way for the International Health Commission. Mr. Rose studied the work in all the states very closely and correlated it by acquainting all the directors with any significant method employed by any one. His suggestions for increasing efficiency came to the state directors from time to time. They were not imperative. They usually carried by their own force. Occasionally he called the workers together for conferences, when there would be round-table discussions, exchanges of experiences; and usually out of these conferences there developed more effective, more uniform and more systematic working plans.

These fundamental policies which guided the Rockefeller Sanitary Commission are being adhered to in the development of the International Health Commission. They have worked satisfactorily thus far in dealing with a single problem in preventive medicine in the international field. They will probably apply with equal force to other public health problems with which the commission will deal in the course of its development.

Having described the groundwork on which the International Health Commission rests, and outlined the policies which are guiding its organization, I can tell the story of its activities to date in a few words.

In considering this larger work, Mr. Rose in 1911 set to work to collect, from all countries of the world, the available information on the distribution and prevalence of hookworm disease; the extent to which it was a handicap to the health and working efficiency of the people; the agencies at work toward its control; the results secured, and the methods employed. The results of this study were published in 1911. They indicated that the disease prevails in a belt of territory encircling the earth for 30 degrees on either side of the equator, inhabited by more than a thousand million people; that "the infection in some nations rises to nearly 90 per cent. of the entire population"; that the disease has probably been an important factor in retarding the economic, social, intellectual and moral progress of mankind, and that "little or nothing is being done toward its arrest or prevention."

Owing to the time consumed in getting the Rockefeller Foundation chartered, the International Health Commission was not organized until June 27, 1913. The members are: John D. Rockefeller, Jr., chairman; Jerome D. Greene, recording secretary; Wickliffe Rose, director-general, Charles W. Eliot, Simon Flexner, Frederick T. Gates, William C. Gorgas, Charles O. Heydt, David F. Houston, Starr J. Murphy, Walter H. Page and William H. Welch.

In July, 1913, I went to Washington to give assistance in directing the work of the Rockefeller Sanitary Commission and to become later the assistant director-general of the International Health Commission. This relieved Mr. Rose, so that he could make several journeys to foreign countries. He proceeded to London in August on invitation, with a view to establishing work in the British dependencies. The stability of the government and the official use of the English language made them a most suitable field for beginning work. A series of conferences had been arranged for him with groups of scientists, physicians and government officials, the most important, with respect to action taken, being a dinner given by Ambassador Page—himself a member of the commission—August 13. Mr. Rose told, while there, of what had been done in the South, described the plan followed and indicated that the International Health Commission was prepared to cooperate with the British government on a similar basis. The proposition was accepted with eagerness; the government expressed its appreciation, pledged its active cooperation in the work and appointed an advisory committee to assist the commission in the colonies.

The British West Indies appeared to all the logical region for beginning work. Accordingly, Mr. Rose, in October, visited seven of the colonies: Barbados, Trinidad, British Guiana, Grenada, St. Vincent, St. Lucia and Antigua. He desired to make a first-hand survey of conditions. He obtained a general view of the country and established an acquaintance with the officials and the working population. He observed the conditions of infection and discussed working plans with the medical officers. In 1914 he spent about half the year on a journey around the world, visiting a number of countries, giving special consideration to Egypt, Ceylon, the Federated Malay States and the Philippine Islands.

In the meantime, the work of organization had been taking definite shape, and work was getting well under way in some of the colonies. Early in March Dr. J. H. White was secured for a year from the United States Public Health Service to undertake the establishment of work in certain of the Latin-American countries.

Here, as in other places, the commission did not enter the field without first being invited by the government, and receiving assurance of cooperation in the work undertaken. Dr. White had an intimate acquaintance with the Latin-American people, which enabled him to lay the groundwork successfully and develop excellent working forces for Panama, Costa Rica, Nicaragua and Guatemala before the close of his year's work with the commission. These republics will afford nuclei from which operations can spread to the other Latin-American republics as conditions warrant.

In the West Indies, Dr. H. H. Howard is now directing the work. He received his training in the commission's service in the South. On government invitation he aided in organizing the work in British Guiana, which I have already mentioned. Active measures are now in operation or pending for six of the West Indian colonies, and work will be under way within a few weeks in Dutch Guiana. In general, the working plan followed in British Guiana is contemplated in all this field.

The East presents an enormous field for work, which in many respects offers very difficult problems. For this post the commission secured Dr. Victor G. Heiser of the U. S. Public Health Service, who, as director of the Bureau of Public Health in the Philippines during the past twelve years, has dealt successfully with the more or less primitive native population, and developed a highly efficient department of health. He is to give general supervision to the activities previously started in Egypt, and immediate direction to the extension of the work to other countries of the East as conditions favor.

The work of the present year will cost the commission approximately $400,000, which amount is supplied by the Rockefeller Foundation. It is expected that the funds will be increased from year to year with the growth of the commission's work.

I do not know what other fields of activities will be entered by the commission. Measures that now or ultimately may be of international scope would be viewed with greatest interest. You have been told how aid is already given toward the development of public health agencies in several countries. This kind of work will, of course, be continued on one plan or another.

The Director-General has been giving considerable thought to the development of facilities for adequately training workers for the many tasks in the field of preventive medicine. He recognizes also, as very pressing in many countries, the need of facilities for the care of the sick. This field would call for strengthening or establishing medical schools, hospitals and clinics, and the training of natives to operate them. The attack on hookworm disease has led also to the consideration of a similar attack on other diseases, such, for example, as yellow fever or malaria. Entrance into any of these fields, I think, would not be expected except on the basis of careful study and the maturing of definite plans. It might develop that other fields will present themselves which offer more fruitful effort in accord with the paramount aim of the commission, which is to help the countries to help themselves in bringing into activity their own working agencies with their own resources.

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INJECTION OF ALCOHOLIC SOLUTIONS OF DIFFERENT STRENGTHS INTO PERIPHERAL NERVES

A COMPARISON OF THE RESULTS OBTAINED *

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For the treatment of certain kinds of severe neuralgia, intraneural injections of alcohol have achieved much success. Pain can be relieved; but, unfortunately, in order to do so, other disturbances more or less severe may be substituted.

Alcohol destroys nerve tissue by dissolution, coagulating albuminous material and dissolving lipoids. And the extent of destruction must depend on the completeness of contact and the strength of the solution injected. Whenever the sensory fibers of a mixed nerve are destroyed and pain put an end to, motor fibers must at the same time be destroyed and paralysis created, for unlike some other toxic substances, alcohol does not have a selective action on functionally different nerve fibers. In purely sensory nerves like the trifacial, this is of no importance; but in motor and mixed nerves, the sciatic for example, it is of the greatest moment. Strauss[1] has recorded a case in which the sciatic nerve remained paralyzed for a year after the injection of alcohol.

It can readily be appreciated that if a method of using alcoholic injections could be perfected by which the degree of motor paralysis could be greatly diminished without a corresponding diminution in the amount of sensory loss of function, then an almost perfect method for the relief of severe pain might be attained.

The following experiments were begun by Dr. Eisenbrey, in the laboratory of Dr. Charles H. Frazier, at the suggestion of Dr. William G. Spiller, in order to determine and compare the effects of injections of different strengths of alcohol, and the microscopic specimens were subsequently prepared in the Laboratory of Neuropathology.

Seven dogs were operated on. In each instance under ether anesthesia an incision was made and the sciatic nerve was exposed by blunt dissection without disturbing its fascial relations. The nerve was then injected by means of a small hypodermic syringe with the required solution. The nerve sheath was punctured two, three or four times at points close together. The skin incision was closed by suture. After a certain time had elapsed the animals were killed and the sciatic nerves of both sides were removed for microscopic study and comparison. Muller's fluid was used for preservation. Sections were cut in celloidin and stained by the Weigert, hemalum and fuchsin and Marchi methods.

When 80 per cent. alcohol was used, paralysis was immediate and complete; but with 50 per cent. alcohol, paralysis did not appear to be so severe; 25 per cent. alcohol had little or no effect. In one instance 40 per cent. alcohol seemed to cause more disturbance than did a 50 per cent. solution.

These results were substantiated by the microscopic appearances of the nerves themselves. In every case paralysis was caused by the direct chemical action of alcohol, which invariably resulted in nerve degeneration. With 80 per cent. alcohol degeneration was practically complete, but 25 per cent. alcohol did not cause any definite changes from the normal. With 50 per cent. alcohol, degenerative changes within the nerve were very distinct, but somewhat less pronounced than those caused by 80 per cent. solution.

In no instance did salt solution injected into the sciatic nerve cause any evidence of degeneration, or any clinical signs suggesting paralysis.

The mere technical procedure of inserting the needle did not produce any disturbance, hemorrhage did not occur, and scar tissue did not develop at the site of injection; nor was perineuritis sufficiently marked to be of importance.

In drawing deductions from the facts presented, it would seem proper to conclude that strong alcoholic solutions cause greater destruction of nerve tissue than very weak solutions, and that salt solution may be entirely harmless. The nerve fibers were entirely destroyed by the stronger solutions, yet they appeared in a favorable condition for ultimate regeneration and recovery of function.

In general these results are in harmony with those obtained by May.[2] In his Group 1 the results were rather variable. Thus, in his Cases 11 and 14, the injection produced no obvious effects, but in Case 12 a slight transitory weakness ensued, while in Cases 9, 10, 13, 15 and 16, the disturbances of function were very severe and lasting. However, in Case 11 he used only 50 per cent. alcohol, and in Cases 9 and 14, 90 per cent. was used. May believes that such great contrasts must depend largely on the difficulty of ensuring adequate penetration of the nerve by alcohol. No doubt this is true; nevertheless, stronger solutions are much more destructive than weak ones, provided the technic is adequate.

There is abundant clinical evidence to prove that after destroying the nerve by injecting alcohol, regeneration and restoration of function does occur, provided complications do not interfere.

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* From the Laboratory of Neuropathology of the University of Pennsylvania.

[1] Strauss: *Jour. Nerv. and Ment. Dis.*, January, 1914, p. 37.

[2] May: *Brit. Med. Jour.*, Aug. 31, 1912.

Schlosser,[3] after having treated 209 cases of neuralgia, expressed the opinion that cures by this method were not permanent, but afforded freedom from pain for about a year. In 123 of his cases, the trifacial nerve was affected, and among these there was an average of ten and a half months' relief from pain.

My experiments do not warrant any conclusions in regard to the length of time required for regeneration; all that can be said is that the nerves appeared to be in a favorable state.

When a nerve has been severed and reunited, a number of months may be required for restoration of function; indeed, many such cases are recorded in which the conditions appeared to be favorable, yet more than a year elapsed before recovery took place; but it would seem probable that nerves destroyed by alcohol should regenerate at least as quickly as when severed by some other means; in fact, they might regenerate more rapidly because their sheaths would not have been disturbed, and the likelihood of scar tissue developing would be diminished. In most of Schlosser's cases, recovery of function seems to have required about ten and one half months.

In Greeman's[4] experiments on rats, he found that when the sciatic nerve was cut, so much scar tissue formed that regeneration was interfered with; therefore he destroyed the nerve by crushing, by this means preserving the nerve sheath, which served to exclude fibrous tissue, and regeneration was not interfered with. It is not improbable that in some instances the mere mechanical interference of inserting a needle might lead to scar tissue formation or hemorrhage. This might account for the permanent paralysis which occurred in a case mentioned by Bassoe.[5] In so large a nerve as the sciatic there are blood vessels of considerable size relatively, and if injured, hemorrhage might occur sufficient to cause paralysis. In such a case surgical interference should be considered, for if sufficient time for regeneration had already elapsed, there must still be some local disturbance, which might be successfully removed if the sheath of the nerve trunk could be opened.

Facial spasm can be stopped by injection of the stronger solution of alcohol, but of course paralysis must be substituted. It would seem that in such cases repeated injections should be tried, first beginning with 25 per cent. alcohol and then gradually increasing the strength; by this means spasm might be relieved and the paralysis which is substituted would be made less severe and of shorter duration.

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[3] Schlosser: Quoted by Hecht, D'Orsay: The Methods and Technic of the Deep Alcohol Injections for Trifacial Neuralgia, THE JOURNAL A. M. A., Nov. 9, 1907, p. 1574.

[4] Greeman: Jour. Comp. Neurol., 1913, xxiii, 479.

[5] Bassoe: Jour. Nerv. and Mental Dis., January, 1910, p. 38.

The Industrial Proletariat.—A century and a half of the new economic system of production has passed and has inevitably brought about profound changes in the industrial and political development of the civilized world. During this period, giant strides have been made in industrial expansion, and wonderful discoveries in the domain of the physical sciences. Invention has been followed by invention, and greater economic progress made within this comparatively short period than during the whole history of mankind. Methods of production have been completely revolutionized and industrial control concentrated in the hands of a special class; while a large portion of the population has been converted into a great standing army of a new class—that of the industrial proletariat.—Price, the *Modern Factory*.

RELATION OF THE GENUS "MONILIA" TO CERTAIN FERMENTATIVE CONDITIONS OF THE INTESTINAL TRACT IN PORTO RICO *

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Throughout the last six years I have had an opportunity to observe more closely the large number of indefinite symptoms which make up what has been variously termed by us neurasthenia, anemia, chronic gastritis, gastro-intestinal catarrh, fermentation in the intestinal tract, fermentative dyspepsia, chronic gastroenteritis of the tropics, *descomposiciones del intestino*, culminating in such diagnoses as gastro-enteritis tropical, phthisis intestinal, and sprue.

Fully one-half of my own personal experience has been with those who suffer from what our patients are pleased to denominate "the stomach," meaning, nine times out of ten, the intestinal tract. The complaint usually is that they cannot eat without bloating; that, from time to time, they have "decomposition of the bowels"; that they are getting pale and losing strength in spite of what they eat—all trying to overfeed in the hope of strengthening themselves. To this add the very large number who have, in addition, vague pains in the "kidneys" and the rest of the body, who become breathless on the slightest exertion, and who are extremely nervous. It has been entirely impossible for me to deny the self-evident fact that from the rank of these people come the majority of our cases of true sprue, as so described, with its four cardinal symptoms—sore and beefy tongue, a gaseous bowel, a foamy, light-colored, abundant diarrhea, and a small liver. It has been entirely impossible for me to dismiss the suspicion that sprue, as we know it, is usually only the terminal phase of that which we have so frequently seen in our offices, and which we have contented ourselves heretofore in calling "fermentative dyspepsia," or any other descriptive term which seemed scientific and medical.

The strife which has taken place to determine the cause of that most fatal disease, still known by its Dutch name of sprue, has led men all over the world to variously consider it here a condition, there a disease; here due to a protozoon, and there to a fungus. Of late this strife has become acute and some men are boldly asserting that no one has proved even that sprue is a disease.

Several years ago I had about concluded that sprue was a disease and that it might be due to some parasite carried in certain fruits, particularly the pineapple. That was because a good many of my patients at that time, representing my worst cases, came from fruit-bearing districts. Then, unable to find anything definite in the pineapple theory, I began to believe that sprue was a disease like beriberi, considered to be an intoxication; but after taking careful histories, my suspicions rested more and more on the yeasts. With this strong suspicion in my mind, I received one day from Mr. John M. Turner of San Juan, a pupil of Doremus, and a man who is very practical in his judgment of the value of flour and yeasts, a letter in which he said that he believed that something was the matter with the yeast here, and he connected it in some way with sprue. Later on I was attracted to examine the tongue of a child 12 years of age, suffering from what appeared to be thrush. On culture, however, the organism did not ring true to what I had read of *Oidium albicans*, and from that time I have steadily devoted myself to the study of mycology as it applies to sprue. To Chalmers and Castellani is due the credit of furnishing a means by which we can distinguish between the various species of "Monilia," understanding that Monilia is a yeast-like body producing mycelial threads in its vegetative state in contradistinction to its congener, with which it has heretofore been confounded, saccharomyces, which reproduces in its vegetative condition by ascospores.

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* Read before the Medical Society of the District of the North of the Porto Rico Medical Association, March 18, 1915, by the author as president of a board for the study of tropical diseases as they exist in Porto Rico, and collaborating with the Institute of Tropical Medicine and Hygiene of Porto Rico.

Up to the present, since October, 1914, I have made cultures in Sabouraud's glucose agar, 4 per cent., plus 2, from 100 tongues. I consider this medium as specific for Monilia as Loeffler's blood serum mixture is for *Bacillus diphtheriae.*

Twenty-two of these cultures were from cases of typical complete sprue, with actively inflamed tongues and with frothy diarrhea at the time of examination, and all were positive for Monilia at the first examination. Three of these patients have since died. This gives a percentage of 100 harboring Monilia in this group.

Forty-seven either had been cases of sprue under my care or had histories, present or past, which were more or less suggestive of it. All save 7 of these had normal tongues at the time cultures were made. Of these 47 cases, 10 gave positive cultures for Monilia, 7 causing, if we accept moniliasis as the new term for sprue, the intestinal, and 3 the tongue type. Of the 7 which had inflamed tongues in this group, 3 were clearly cases of tongue sprue. The 4 negative were as follows:

A baby, aged 4 months, with simple stomatitis of brief duration (four days).

A teething, rachitic child of 18 months, with a severe enterocolitis.

An old man with chronic enterocolitis.

A young man, father of one of the three patients with tongue sprue positive for Monilia, one of this series of 47.

(Only one tube was inoculated, and with another effort the parasite might have been demonstrated.)

The percentage of cases positive for moniliasis of the tongue was 21.

Thirty-one persons were examined who did not have sprue. Twenty-six had no suspicion of sprue, past or present, and had normal tongues. Only one of this class was positive for Monilia. This case was one of a pale man who at first gave no past history of fermentation disturbance of his bowel, but who later recounted a history most suspicious of sprue of the intestinal type. His wife had active, complete sprue, and belongs to the first group.

Of the 47 cases suspected of sprue, the feces of 4 negative by the tongue were examined and 3 found positive. The remaining 33 are still to be investigated in this sense. Three of the 47 cases suspected of intestinal sprue on cultures from their feces were positive.

In all, the feces of 10 of the 100, and one other, were plated and only the 3 above noted, and one of Series 1 already positive for his tongue lesion, were positive. Three of the remainder were cases of pellagra. The other 3 were from healthy persons.

RESULTS OF TREATMENT

Treatment consists usually in the administration of food in which Monilia does not flourish, and which it cannot ferment. There are three types of diet:

1. A strict milk diet, giving 8 ounces every two hours on nine occasions a day for four days, and thereafter increasing the dose by one ounce every four days until 13 ounces every two hours have been taken for one week. The milk should be taken cold through a straw, slowly, and half a culture tube of the liquid culture of the Bulgarian strain of the *Bacillus acidus lacticus* should be added to each feeding, for the purpose of overgrowing bacterial sources of fermentation. On reaching a dose of 13 ounces of milk, one banana a day should be added, and every four days one more for every ounce of milk to be subtracted per feeding. When 10 ounces of milk every two hours and three bananas a day are reached, the diet may be modified by gradually permitting eggs, fruits and fresh vegetables with a low carbohydrate content. After a few days on this diet the excess of gas usually diminishes; indeed, generally disappears.

2. A strict meat diet, giving 2 pounds of chopped and roasted meat per day, divided into six feedings three hours apart. Few can sustain this diet over a week, but almost without exception it stops the diarrhea. (Carnegie Brown.)

After this week add vegetables, fruits and eggs as above, and reduce meat.

3. A simple fruit diet in which bananas may form the principal feature.

Of this series of sixty-nine cases of sprue and fermentation conditions of the bowel or simple stomatitis, 12 were cured, 32 have improved, as a rule greatly, with gain in weight and color, 19 are still not sufficiently changed to warrant deductions, 2 have become worse, 4 have died.

I regret to state that continued experience with santonin and emetin has long since caused me to abandon their use because of their inefficacy.

The organism is a typical Monilia. Its biologic characteristics are that it ferments glucose, levulose and maltose; that it causes an acid reaction in these three, and in saccharose and galactose; that it does not liquefy gelatin or serum; does not coagulate or render milk acid, but on the contrary, renders it alkaline; and that all other sugar mediums lose rapidly in acidity. In pure culture, five drops of it were injected into the muscles of the tongue of a large Belgian hare, causing its death in seventy-five hours thereafter, with enormous production of intestinal gas and diarrhea, but without sore tongue, the identical organism being recovered in pure culture a few hours after death directly from practically all of the organs of the hare's body.

The same organism—which, by the way, was one isolated from the tongue of one of our most beloved officials of the American government here, and which not long since caused his death—was fed in pure culture to a one-thousand gram guinea-pig, causing, I suspect, its death three weeks thereafter. Cultures from the organs of the body, save tongue and stomach, however, were very disappointing, and the histopathologic picture in its intestines and stomach has not yet been worked out for lack of time. This animal also suffered from gas and diarrhea. Cultures of this organism with malted milk were fed during a time to a monkey. This monkey is still alive, but, although the feeding experiments have been stopped now about three weeks and the animal is being fed good rations, it having previously been fed on malted milk mixed with the culture, it is rapidly declining in health, becoming thin and sick, with occasional sharp diarrhea. The last word must yet be said on this animal.

To sum up, animal experimentation seems to bear out in a general way that we are dealing with a pathogen of low virulence and that we cannot expect to obtain any sensational sudden deaths from acute sprue due to feeding experiments, if, indeed, we shall be able to satisfy the scientific world that Monilia has been the determining factor in the death of any animal fed by its cultures.

What I particularly want to bring out is the suggestive evidence presented by the examination of what now is a considerable number of tongues, of cases of sprue and those not sprue.

Bahr's conclusion that *Monilia albicans* is the cause of sprue in Ceylon requires some comment in this paper. With his reasons for and against considering sprue to be a moniliasis of the digestive tube, and his conclusions therefrom, you are now familiar. The conclusions drawn are the result of an interesting study of sprue in Ceylon for two years by a most distinguished group of English workers, and cannot be lightly criticised. Nor are we authorized to question their findings. But the work here demonstrates that the Monilia of sprue in Porto Rico is *not Monilia albicans*, but an organism which has not heretofore been described. For the rest, Bahr's reasons for considering sprue to be a moniliasis of the intestinal tract are remarkably strengthened by the work here. Bahr states that he has found Monilia in 57 per cent. of sprue tongues and 17 per cent. of normal tongues. I have found them in 100 per cent. of sprue tongues and 3 per cent. of normal tongues. If you care to add my seven cases of intestinal sprue with normal tongue, the percentage would be raised to 11, but this is not fair, as it would deny that the seven were intestinal sprue.

I have not yet found *Monilia albicans* in Porto Rico, nor does any one seem to have described my species in temperate climates. Hence, Low's chief criticism of Bahr's work, in which he practically denominates it a failure to prove the cause of sprue, certainly does not obtain here. This distinguished worker objects that a Monilia common in England without sprue could cause sprue in Ceylon. It is well answered by Bahr, who notes that regional influences may greatly affect identical organisms and make of pathogens of almost no virulence, very dangerous parasites. As to Low's objection that the geographical distribution of sprue is in favor of his and Castellani's protozoa theory, let me say that we do not at all know the distribution of sprue, even clinically, because little has been written of it and a diagnosis is often difficult.

May not some of the pellagra of our Southern states be in reality sprue? It would be interesting to study some of the cases without skin lesions in which the diagnosis is pending between these two diseases. I have had so far three cases with stomatitis and white diarrhea which I considered sprue without moniliasis of the tongue, but which later cleared up by the appearance of the pellagrous eruption.

While fully aware that it will be some time—perhaps many years—before the sum total of circumstantial evidence will point to Monilia as the unmistakable cause of sprue, I wish to state my belief that sprue is moniliasis of the digestive canal, and that in Porto Rico, at least, it is due, so far as I have yet gone, to the species which I have recently described in the course of work in the Institute of Tropical Medicine and Hygiene in Porto Rico.[1]

I have found other monilias in the stool, which are still under study, but the examination of tongues seems to point overwhelmingly to sprue tongue as being caused by the Monilia I have described, and from a sprue tongue to intestinal sprue is only a matter of extension. It is difficult to conceive how a protozoon could be affected by the treatment which has been found to be the sine qua non for the cure of sprue, namely, the withholding of those articles of food which in my cultures of Monilia are proved to favor its growth and cause fermentation and acidity. In fact, apart from the remarkable consistency of my Monilia in sprue tongues, and its usual absence in uninflamed tongues, to me the therapeutic test is the most striking, for any one can take a case of sprue and, almost without exception, after an appropriate diet of milk, meat or fresh fruits, or a combination, can dismiss inflammation of the tongue, gaseous distention of the bowel, diarrhea, and even, if you please, much, if not all, of the cachexia. Is it not more than a coincidence that the withholding of carbohydrates is enough to cause an immediate betterment, for the time being at least, and generally, a temporary "cure" of sprue, which perhaps may be permanent? The very fact that some cases are permanently cured by these diets alone, without any medicine whatsoever, makes me extremely suspicious of the asseveration of Chalmers and Castellani that sprue is not likely to be a "mycosis," but is probably a protozoal disease.

In conclusion, I wish to call attention to the fact that I am now engaged in studying cultures from the excrement of persons affected with fermentative conditions of the intestinal canal in Porto Rico, and am finding with great regularity monilias which seem to correspond, in the few mediums I have sown, with those I am finding in true sprue, not forgetting that it is more than possible that in this dangerous genus Monilia there must be more than one pathogen for the intestinal canal. One must ever keep in mind that the clinical signs and symptoms of sprue depend largely on the portion of the intestinal tract affected, an observation well brought out by Bahr. Thus, tongue sprue is called *Sapito,* or thrush, here. It is common among children, and often is followed by a picture impossible to avoid denominating sprue. But many such cases promptly get well, and an incredulous smile is the only reward for suggesting that such cases of "thrush," frequently of long duration, but strictly limited to the tongue, are really local sprue. I have a little patient who for six months suffered from tongue sprue alone, positive for Monilia, and utterly rebellious to all treatment so far employed, but some months previous to his tongue symptoms he had a three months' bout of white, frothy, abundant diarrhea without mouth symptoms. I have another such case of short standing, in a patient who was taken suddenly ill with fever of 40 C. and a fiery red and desquamated tongue. She was a young school teacher and gave a history of occasional gaseous disturbance of the bowels with frothy movements. No diarrhea, however, accompanied her tongue sprue. In fact, this oscillation from simple tongue sprue to intestinal sprue and back again is typical of sprue. Whether there is more than one species of Monilia that causes sprue remains to be seen, but the matter is one of vital importance, and every effort should be made to assist the Institute of Tropical Medicine in investigating all cases in which the diagnosis of sprue has or should be made, to determine the presence or absence of monilias.

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[1] Ashford, B. K.: A Monilia Found in Certain Cases of Sprue, THE JOURNAL A. M. A., March 6, 1915, p. 810.

I cannot close this paper without requesting that some systematic effort to examine the bread in this island for the presence of Monilia be made. I have found living Monilia in the center of a cooked loaf of bread, underbaked, of course. With my colleagues of the Institute, we examined 10,140 country people in the mountains of Porto Rico last year for clinical evidences of sprue and were only able to obtain nineteen cases, some of which were even doubtful, while in San Juan I have seen over 300 cases in six years, and I know you all have had many cases. When we consider this and think also that country people in Porto Rico, such as live in the mountains and in distant barrios—such, in short, as form our clinics in the mountains—rarely eat bread, and that out of the nineteen cases eleven were from the town of Utuado, there is another reason why we should fear Monilia infections of bread—if not fear, at least investigate—for the matter is becoming actually vital to the life and health of many people who are willing and able to spend the money to keep in good health.

INDICATIONS FOR OPERATIVE INTERFERENCE IN GOITER

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If, in the present state of our knowledge of the clinical manifestations of goiter, we undertake to operate on others than those that are unquestionably causing immediately grave, evidently correlated detriment, a very nice discrimination must be exercised. In young people it is probable that most of the enlargements are more or less physiologic, an effort to meet an increased demand; here if any treatment is indicated it certainly should not be of a destructive kind.

The real or fancied presence of a goiter is rather common. Even more common are individuals who are out in their functional adjustment; the neurasthenic, the highly strung person suffering from mental or physical overstrain, the early phthisic, or the patient suffering from any one of a number of chronic intoxications; many of these give a picture that may more or less closely resemble thyroid intoxication or irritation, and these individuals may have a coincident goiter. If, on the other hand, we are content to deal surgically only with those that are unquestionably responsible for imminently dangerous conditions, then we shall miss the most opportune time for effectively treating many that are causing real, progressive damage, the seriousness of which will later have become much more evident: as a general rule, the more evident the damage the more danger in the operation and the less satisfactory will be the result. The real degeneration caused by goiter can only be checked, not repaired, by the removal of the goiter.

For practical purposes, goiters may be considered to do damage in one or both of two ways, by mechanical pressure or by intoxication. In using the term "intoxication" I know I am somewhat begging a question, but I use it as a matter of convenience to avoid prolix discussion. Either the pressure or the intoxication may be very acute, or it may be very insidious but none the less detrimental in the end.

Goiters that seem to poison the patient have been grouped together under the terms of "toxic" or "exophthalmic" goiters, while goiters that do not produce toxic symptoms have, regardless of their histology, been classed as simple goiters. Kocher has pointed out that not all toxic goiters are of the same nature. H. S. Plummer,[1] seconded by Wilson's[2] histopathologic studies based on clinical and histologic analysis of a large series of operated goiters, have subdivided the toxic goiters into true exophthalmic and toxic simple goiters; the former show mental stimulation and sympathetic phenomena and histologically show true hyperplasia in some part of the gland, while 50 per cent. of them will show exophthalmos. According to their statistics the toxic, simple goiters never develop exophthalmos, and differ in other respects clinically from the true exophthalmic goiters and do not show hyperplasia. Since they have published these studies, we have been able to foretell whether the histologic examination will show the presence or absence of hyperplasia with sufficient constancy to lead me to accept this subdivision as a definite step forward in the unraveling of goiter pathology.

In dealing with them clinically, we divide goiters into five groups:

1. True exophthalmic goiters.
2. Toxic, simple goiters.
3. Nontoxic, simple goiters that are not causing demonstrable damage and are apparently not liable to.
4. Simple goiters that from their size, location or growth tendencies are liable to cause obstruction or might be malignant, and those that are actually causing obstruction.
5. Inflamed goiters.

To these five groups might be added a sixth, malignant goiters, were it not so very difficult to distinguish them clinically, while they are still operable, from simple nodular goiters in which operation is definitely indicated on account of some peculiar growth characteristic.

Kocher long ago came out flat footed with the contention that excision of one half of the thyroid was the proper treatment for an exophthalmic goiter, and advanced medical thought has slowly swung around to accepting, tentatively, the correctness of this principle. There are those who treat certain exophthalmic goiters medically and successfully, as they treat certain cases of appendicitis in the same way; but this does not gainsay the propriety of the operative plan of treatment.

The premise on which exophthalmic goiters are subjected to operation is that in some way the goiter mass is related to the clinical symptoms and that reduction in the amount of the mass will reduce the intensity of the symptoms. This does not mean that the intensity of the symptoms bears a direct relation to the size of the goiter, for a large goiter in one individual may be much less toxic than a small one in another person, and the toxicity or the susceptibility of the individual may vary from time to time without material change in the size of the gland. What I do mean is, if in a given exophthalmic or even in a simple, toxic goiter at a given time a certain amount of the gland is removed or put out of commission, there will be a proportionate reduction of the toxicity. For reasons to be given later, the clinical evidence of this reduction of toxicity is not always perfectly plain.

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[1] Plummer, H. S.: Am. Jour. Med. Sc., 1913, cxlvi, 790.

[2] Wilson, L. B.: Am. Jour. Med. Sc., 1914, cxlvii, 344; Relation of the Pathology and the Clinical Symptoms of Simple and Exophthalmic Goiter, The Journal A. M. A., Jan. 10, 1914, p. 111; Journal-Lancet, Feb. 15, 1914.

Along with our ability to reduce the intoxication by the removal of part of the goiter, we should not lose sight of the other equally important clinical fact that the toxic stage of an exophthalmic goiter has a distinct tendency to crisis and self limitation. If this is so, why operate on them? For the same clinical reason that we will operate on a diseased appendix; to reduce the direct death rate which under any treatment is not very large in either of these diseases, and also, which is more important, to reduce the period of chronic disability and to prevent the permanent damage which may result when the disease is not completely cured. That the general results of operating for exophthalmic goiter are not so brilliant or so evident as those for appendicitis may be due wholly or partially to one of the following three causes:

First, a certain percentage of cases have been operated on a mistaken diagnosis and never were cases of goiter intoxication.

Second, a case presenting goiter, exophthalmos, tremor, rapid heart and nervous derangement is not necessarily a case of present goiter intoxication; these may all be evidences, more or less, of permanent damage in a goiter that has run its toxic course, and has ceased to be active. It is reasonable to suppose that in such a case no amount of thyroid reduction will repair the damage. An old Pennsylvania mountain practitioner once designated them as "burnt out goiters," and whenever I observe one of them, I am reimpressed with the aptitude of the simile.

Third, a common cause of only partial success is the removal of an insufficient amount of goiter tissue, and yet in the very case that is apparently so disappointing, you may have accomplished your chief object, namely, the saving of the patient's life. This point has been aptly illustrated by comparing a goiter toxemia to alcoholic intoxication. We will grant that in two certain individuals a quart of whisky would be lethal, and that a pint would not be. Then if those individuals were to swallow a quart of whisky each, and one of them vomited half of his dose, for a time both might be apparently equally drunk, but in the end one would recover and the other would die.

This point, ingeniously expounded by Plummer, is illustrated in the following hypothesis: Suppose if in a certain case of exophthalmic goiter it were left unoperated, a fatal crisis would have occurred in the ninth month of the disease, yet in the fourth month the patient shows only a moderate amount of intoxication. If in the fourth month half of the thyroid is removed, it is perfectly conceivable that the intoxication may be greater at the ninth month, the height of the crisis, than it was at the time of operation, and still this patient's life may have been saved by operation.

Halstead[3] reported thirty-nine cases with successful results, in which the greater part of both lobes of the thyroid were removed at two or more operations, in patients who had not been cured by the excision of a single lobe, and in some of them three arteries had been tied. My own experience with secondary excisions has been equally satisfactory, but I now try to avoid them, whenever practicable, by excision of one and one-half lobes at the first operation. Much is supposed to depend on the postoperative care which the patient receives, and in practice this phase should never be neglected; but I feel rather satisfied that if sufficient gland has been removed, the postoperative care will be of less importance.

The most valid objection that can be raised against radical operation for exophthalmic goiter is that the operative mortality which is almost inseparable from operations in these patients in inexperienced hands, which is the early part of any series, unless the operator has been fortunate in his training, is apt to be most discouraging. Most exophthalmic goiter cases come to, or are referred to, the surgeon in or near the height of a crisis, and at this period a radical operation is only too apt to be fatal. However, these patients can usually be nursed along and the crisis bridged over by rest, the use of galvanic current, and one or more ligations, to a stage when the operation can be performed with sufficient safety to be good surgery. Some patients will die after a single ligation, but these deaths are to be charged to the disease, and not to the surgery. Plummer has told me that he has seen more people die of exophthalmic goiter within the first three days after their arrival at Rochester, than have died there postoperatively from goiter excisions. In doubtful cases, preliminary ligations give a very good index to the patient's ability to withstand the radical operation.

The thymus gland is apparently always enlarged in exophthalmic goiter. For a long time, especially in Germany and France, numerous men have contended that in a certain proportion of cases the thymus, and not the thyroid, is the chief factor, and some partial thymectomies have to be done. There has not been sufficient clinical experience to prove or disprove this contention, but rather a definite picture has been described as belonging to thymic cases. Lately Halstead[4] has come out in support of this view. In the hope of obtaining more light on this particular phase of the subject, in relation to certain of our own cases, I recently made a visit to Rochester, Minn., to learn the views at the Mayo Clinic. Plummer said that he had not seen sufficient evidence to warrant the distinction. Judd, after talking to some French visitors, said that he had been tempted to resect the thymus in a certain few cases but had not done so. As far as I know, Kocher has not conceded a major rôle to the thymus in exophthalmic goiter, but has regarded excessive enlargement of the thyroid with glycosuria and nephritis as an advanced and inoperable stage of the disease. I believe that at present this phase must be regarded as an open question. Of my own patients, referred to above, who in some way resembled the pictures described by those who believe the thymus to be a possible major factor, two had thyroidectomies done last summer, and one a double ligation. The late reports from these thyroidectomies would indicate that, for the present at least, they are in need of no further surgery. The ligation case is now ready for a thyroidectomy.

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[3] Halstead: Excision of Both Lobes of the Thyroid Gland for Graves' Disease, Ann. Surg., 1913, lviii, 178.

[4] Halstead: Bull. Johns Hopkins Hosp., August, 1914.

Toxic simple goiters are to be treated by excision or enucleation of the more evidently diseased part of the gland. In these, there is apparently no danger of postoperative hyperthyroidism, but these patients may die postoperatively on account of the advanced degenerative changes that have developed during the period of intoxication. Results of radical operation in these cases are usually excellent, but often great care must be exercised in the diagnosis. That a patient has a goiter is not in itself sufficient reason for assigning accompanying nervous or cardiac symptoms to the goiter as a cause.

Whether or not we accept the hypothetic distinction between exophthalmic and simple goiters cited above, it has no real bearing on the question of the operative treatment of toxic or exophthalmic goiters as a class; but I believe it does give the surgeon some further guidance in the prognosis and in the selection of a particular mode of procedure in a particular case.

Of the nontoxic simple goiters, probably only the ordinary adolescent and certain nondegenerating colloid goiters are amenable to medical treatment; but unless one took the extreme view that because a certain proportion of simple goiters will later show toxicity or cause obstruction, or become malignant, all should therefore be removed; this does not mean that all simple ones require surgical treatment. A very few during adolescence will require operation; a few of them will be of the exophthalmic type, and even here conservative operation may suffice. There is no evidence to show that adolescent, simple goiters are in any way related to the simple ones of later life; and until such evidence is forthcoming they will not be operated on except in special individual cases. Occasionally they are resected on account of their size, but this is a rare occurrence, though Kocher states that goiters of pronounced irregular growth should be removed regardless of age. Many adults carry simple goiters through life without inconvenience or symptoms. Simple goiters causing no symptoms may demand removal on account of their size. The ease with which a single nodule or cyst can be enucleated may decide the removal of those of but moderate size. Goiters causing pressure symptoms, including those interfering with the recurrent nerve, rapidly growing goiters, those situated in the chest or behind the pharynx or trachea, tender goiters and those causing spontaneous pain should receive surgical treatment, which usually consists in the removal of the more evidently diseased part of the gland with the preservation of sufficient functioning tissue. As a general rule, nodular goiters are more apt to require thyroidectomy enucleation or resection than the smooth homogenous ones.

Simple thyroiditis is seldom, but suppurative thyroiditis and acute and chronic strumitis are usually helped by proper operation. This may consist in simple drainage, excision of a lobe or enucleation of a calcified nodule or suppurating cyst.

Malignant goiters, if movable, should be removed; but the diagnosis of malignancy in operable goiters is usually made after their removal.

Before undertaking any goiter operation, it should be determined that the general condition warrants the surgical risk. Even in simple goiters of long standing, this may require nice discrimination on account of the extent of the secondary degeneration present in vital organs.

Judd has made some interesting observations in regard to goiter in pregnancy. If exophthalmic goiter develops during pregnancy, either death in crisis or spontaneous recovery is apt to occur toward the end of the pregnancy. Patients operated on during pregnancy, other than by simple ligations, are apt to miscarry a month after operation, and to be extremely ill or die. This has happened when it was not known that the patient was pregnant at the time of operation.

In the presence of real hyperthyroidism, none but absolutely necessary excisions for relief of pressure are indicated.

SUMMARY

Toxic simple goiters and exophthalmic goiters that are still active are entitled to some sort of operation that tends to lessen the bulk or activity of the gland.

Adolescent goiters, with rare exceptions require no operation.

Simple goiters are to be dealt with according to the indications of the individual case.

Pregnancy greatly increases the risk of radical goiter surgery.

Metropolitan Building.

THE PRESENT STATUS OF THE ABDERHALDEN TEST [*]

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Much has been written in the last two years on the Abderhalden test. The workers in this field may be divided into three groups:

1. Those who support Abderhalden's contentions entirely and believe that a diagnosis of pregnancy, carcinoma and various other conditions can be absolutely made by exposing the serum from a case to the specific substrate against which these ferments are mobilized by the body.
2. Those who believe that the method is of no possible value in diagnosing pregnancy or any other condition.
3. Those who believe that, while the ferment content of the blood is undoubtedly increased in pregnancy and various other conditions, the specificity of the ferments as maintained by Abderhalden and his supporters is not proved as yet; and in the light of the most recent work is highly improbable.

To the individual not engaged in the work, the many papers appearing, some of which contain contradictory statements, must be very confusing. It is in the hope of clearing up some of this confusion by a statement of what has been found recently by other authors as well as by the writer, that this paper is offered.

In the first place, Abderhalden's present position must be of paramount importance. Since the first descriptions of his technic appeared, various slight modifications have been advised by him. For example, he advises a longer period (from twenty to twenty-four hours) for dialyzation.[1] Why, may we ask, if, as he states, he has never obtained an incorrect result with the shorter dialyzation period, does he advocate this change? Furthermore, why is the limit of dialysis put at twenty-four hours? If the ferments are strictly specific, no digestion would occur in the longer dialysis period. The obvious answer to these queries is that he failed to obtain positive reactions in true cases of pregnancy when dialyzing only sixteen hours; and he obtained positive reactions in cases not pregnant when dialyzing more than twenty-four hours. These results are exactly in accord with my own, and with those of others. However, this point is not set forth in Abderhalden's writings or in those of his associates. Moreover, Abderhalden arbitrarily insists that a reaction which contradicts the clinical findings must be due to error in technic and that one must find such error to explain the apparent discrepancy. This is practically an admission that the reaction is not infallible, and that search for the cause of the failure must often be made after the clinical diagnosis is apparent in a given case.

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[1] Abderhalden, E.: München. med. Wchnschr., 1914, lxi, No. 8.

From the workers in this field in this country whose papers appeared in the early months of last year, and who then enthusiastically endorsed Abderhalden's assertions, we have heard very little in the later months. I have determined by personal communication in some instances that their early results were not borne out by their later experiences, and that in several cases the test has been given up entirely because of its unreliability.

The men who are still supporting Abderhalden's assertions as to the absolute specificity of the ferments and reliability of the test are either relatively new workers in this field of serology, or men connected with a commercial laboratory.

Of the second group of men, those who deny that the test has any value, that there is nothing to show that the ferments are increased in pregnancy and other conditions, little need be said. They demonstrate by their statements that either they have not done enough work with the test to know whereof they speak, or that their technic was so poor that they could not obtain results with any test requiring a knowledge of serology.

The third group of men believe that the ferments are increased in these various conditions; that there is no proof that these ferments are specific, and that the Abderhalden test may be of value as an aid to diagnosis in a given case, but that it is not by any means infallible. Most of these men, including myself, consider that a negative reaction in a doubtful case is of more value in ruling out pregnancy than a positive reaction would be in affirming it. This view was put forward by Echols[2] and by the writer[3] at the 1914 session of the American Medical Association, and at that time aroused considerable adverse comment because it was opposed to the experience of most of the workers in the field at that time, and was not in accord with the teaching of Abderhalden.

Since that time, however, much work has been done on the typical Abderhalden test, and on a modification which tests for the antitryptic value of the serum in the various conditions, including pregnancy. In this country Jobling and Petersen[4] have led the work, and have shown that the antitryptic power of the blood serum is increased in some of the conditions in which I have demonstrated the increase of the tryptic power of the blood serum.

In collaboration with Eggstein,[4] they have produced evidence which, if substantiated, will destroy some of the underlying principles of the Abderhalden theory. They believe that the placental tissue has an affinity for, and absorbs the antitryptic substances present in the serum, and that the tryptic ferments are then free to digest the serum proteins. This view had been previously worked out by Adachi in Berlin,[5] and he has advocated the use of the Rosenthal modification of the Fuld-Gross method of antitrypsin determination instead of the Abderhalden test as a diagnostic aid in pregnancy. Among other men who have arrived at substantially the same conclusions, are Bronfenbrenner,[6] De Waele,[7] Kjaergaard,[8] Oller and Stephan,[9] Plaut[10] and others.

Concerning the present status of this question, the following conclusions seem justified:

1. The Abderhalden test is not a specific and infallible test for the diagnosis of pregnancy, carcinoma or any other condition.
2. A negative reaction in a given case is of great value as speaking against the possibility of pregnancy.
3. A positive reaction must be interpreted as only speaking for the diagnosis of pregnancy, and that only in the absence of a large number of pathologic conditions, to some of which I have already called attention.
4. The ferments are increased in the blood during pregnancy. As yet, however, no way has been devised of differentiating between these ferments and the ferments mobilized in many pathologic conditions.
5. The test should be done in all cases in which the diagnosis of pregnancy is in doubt, with a full knowledge of its limitations and possible error. It should be regarded as corroborative evidence together with other clinical phenomena.

These conclusions are in accord with what any one familiar with biologic reactions would expect. There is no known serum test or reaction at the present time that is absolutely reliable for diagnostic purposes. The Wassermann reaction cannot be relied on in all cases, and the same can be said of the various complement fixation and precipitin tests. Nobody doubts at the present day the value of the Widal reaction in typhoid fever, and yet no clinician would care to base a diagnosis of typhoid on that alone, and insist that he could not be wrong.

The subject should be approached from a broad point of view, and the Abderhalden test must be given its place along with other biologic reactions. Its value as a diagnostic measure must be decided by the slow accumulation of facts, by careful workers in scientific laboratories; and its right to endure must depend on their verdict.

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[2] Echols, Chester: Limitations of the Dialysis Method as a Practical Test for Pregnancy, The Journal A. M. A., Aug. 1, 1914, p. 370.

[3] Falls, F. H.: A Study of the Ferment Activity of the Blood-Serum During Pregnancy and Under Normal and Pathologic Conditions, The Journal A. M. A., Oct. 3, 1914, p. 1172.

[4] Jobling, Eggstein and Petersen: Jour. Exper. Med., 1915, xxi, No. 3, p. 227.

[5] Adachi: Ztschr. f. Geburtsh. u. Gynäk., lxxvi, 516.

[6] Bronfenbrenner: Jour. Exper. Med., xxi, No. 3, p. 227.

[7] Waele, H. De: Ztschr. f. Immunitätsforsch. u. exper. Therap., xxii, 171.

[8] Kjaergaard: Ztschr. f. Immunitätsforsch. u. exper. Therap., xxii, 31.

[9] Oller and Stephan: München. med. Wchnschr., 1914, lxi, Nos. 1 and 2.

[10] Plaut: Munchen. med. Wchnschr., 1914, lxi, No. 5.

Concerning the confusion that may arise regarding the work done on the antitryptic power of the blood serum in various conditions, I should like to point out that the antitryptic power of the blood is raised in the same conditions as the tryptic power. While for theoretical purposes it is very important to understand that the placenta is not digested by the ferments in the Abderhalden test, but merely adsorbs the antitrypsin, and leaves the trypsin free to digest the serum proteins, practically this method is a test of the tryptic activity of a given serum after the adsorption of the antiferments, which have been mobilized in all probability in response to the increased tryptic content of the blood.

2800 Washington Boulevard.

THE FEEDING OF BILE COLLECTED FROM BILIARY FISTULAS IN OBSTRUCTION OF THE COMMON DUCT

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In 1912, Schmilinsky[1] reported a case in which a biliary fistula developed after resection of the stomach for ulcer followed by gastro-enterostomy. From 800 to 1,000 c.c. of bile were discharged per day. The stools were acholic. The patient was losing strength so rapidly that it became apparent he could live but a few days longer. Schmilinsky met this crisis by collecting all the bile escaping from the fistula and introducing it into the stomach through a stomach tube twice a day (about 400 c.c. each time). The treatment was kept up for two months. The patient bore it excellently. As the fistula showed no tendency toward closing, an anastomosis was made between it and a loop of jejunum. A cure is reported to have followed.

This eminently simple means of improving the condition of such patients was carried out by me in the following case:

Nov. 25, 1914, Benjamin F., pedler, aged 44, was admitted to the Third Surgical Division of Mount Sinai Hospital. A year previously he had been forced to stay in bed a week by an attack of right hypochondriac pain accompanied by fever and jaundice. Two weeks previously another attack of pain in the right hypochondrium forced him to stay in bed. There was jaundice of one week's standing. During the past two days there had been repeated chills.

Physical examination showed a greatly prostrated, deeply jaundiced man with high fever, who gave the impression of being intensely septic. A right hypochondriac mass reached to the umbilicus.

Shortly after admission, the abdomen was opened through a Sprengel transverse incision, and a large pericholecystitic abscess was evacuated; the small, almost normal gallbladder, adherent to the duodenum, formed part of the lower wall of the abscess cavity. When it was opened, much purulent bile escaped; a severe cholangitis was present. The patient's miserable condition forbade prolonging the operation by exploration of the common and hepatic ducts; the abscess cavity and cystic duct were drained, and the abdominal wound closed up to the point of drainage.

A stormy long-drawn out convalescence ensued, complicated by cholemic oozing on the seventh day after operation (controlled by packings inserted under general anesthesia—the cut margins of the gallbladder mucosa were seen seeping blood), and further by a bronchitis with remittent temperature.

Finally seven weeks after operation (Jan. 14, 1915), the patient presented the following picture: There was no fever; the general condition was very poor; the pulse was of miserable quality; there was marked emaciation; all bile escaped through the fistula; the stools were white. Tentative closure (plugging) of the fistula caused cramps and failed to divert the flow of bile into the duodenum; evidently there was obstruction of the common duct. The patient's great weakness forbade operation. Following the procedure described by Schmilinsky for the management of such cases, all the bile was collected and introduced into the stomach by means of the stomach tube twice a day (8 ounces each time—16 ounces per day). At no time was there the slightest nausea. The collection was most conveniently carried out by a catheter which snugly fitted the fistula and led the bile into a bottle attached to the belt and worn under the clothing.

A remarkable improvement took place. The appetite became much better.

Accordingly, Jan. 29, 1915, the abdominal wound was reopened under local anesthesia (1 per cent. novocain-potassium sulphate); then, under nitrous oxid-oxygen anesthesia, through a supraduodenal opening in the common duct, a stone impacted in the papilla of Vater was extracted. The common duct was drained with a small soft tube and the abdominal wall closed by layer suture up to the drainage tube. There was no febrile reaction for the first two days. On the second day cardiac decompensation occurred which, however, yielded to suitable stimulation in combination with the semiupright posture. From now on convalescence was uneventful. The patient was discharged cured, February 19; the fistula had closed; the stools were brown. He was presented before the Surgical Section of the New York Academy of Medicine, March 5, 1915, having gained 10 pounds since leaving the hospital.

The experience of Kausch[2] shows that bile cannot be administered by the mouth. A mixture of bile and red wine was tried. At the end of a week the patient refused continuation of the treatment. During this week, the entire amount ingested totaled but 445 c.c., an insufficient quantity to be of value to the organism.

The advantages of bile feeding by stomach tube for temporarily improving matters sufficiently to permit of further surgical intervention have been indicated above. As a permanent method in cases of inflammatory destruction of the common duct in which the lumen of the duct proximal to the papilla cannot be reestablished, it seems more troublesome but far safer than the forms of anastomosis employed at present in joining the biliary and intestinal tracts. Only too often does one read of death from ascending infection a year or two after operation and after months of apparent health.

CONCLUSION

The administration of bile in physiologic quantities, as just described, is a method for materially improving the condition of debilitated patients with biliary fistulas and common duct obstruction which seems distinctly worth extended trial.

34 East Seventy-Fifth Street.

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[1] Schmilinsky: Zentralbl. f. Chir., 1912, p. 1667.

[2] Kausch: Mitt. a. d. Grenzgeb. d. Med. u. Chir., xxiii, No. 1.

Nursing Mother's Diet.—Nearly every writer on subjects related to maternal nursing, has declared against the view that certain foods ingested by the mother are capable of producing disturbances in the infant through the breast milk. Sour foods, fruits and gas-producing vegetables may be eaten by the mother if they do not cause discomfort to her. They produce no changes in the composition of the breast milk.—Isaac Abt, *Detroit Med. Jour.*, February, 1915.

AN UNUSUAL CASE OF GENERALIZED NONPIGMENTED SARCOMAS OF THE SKIN

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Sarcoma of the skin appears in several clinical varieties: it may be single or multiple, pigmented, nonpigmented, melanotic or hemorrhagic. It may remain limited to the skin or attack the viscera, and may be either primary or secondary. General primary nonpigmented sarcomatosis of the skin, especially of such rapid and extensive development as in the present case, is sparingly mentioned in textbooks and in the literature, and is sufficiently rare to be of interest.

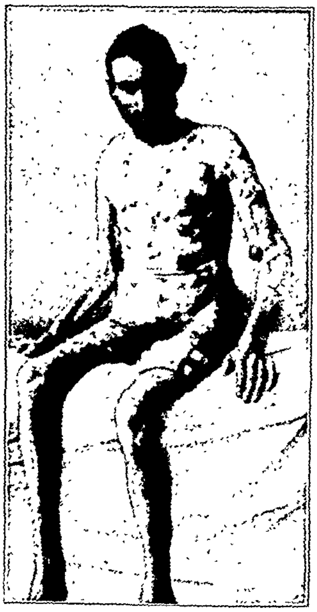

Fig. 1.—Patient with generalized nonpigmented sarcomas of the skin.

Considerable confusion exists as to its place as a clinical and pathologic entity. General sarcomatosis is sometimes used as an alternate name for granuloma fungoides, and is by many considered to be related to the latter or to leukemia cutis. Unquestionably there are some cases which form a connecting link between these diseases, but it is beyond discussion that in others no grounds can be found to put them in the same class. In the case here reported, the absence of a premycotic stage, of subjective symptoms and of any ulcerating tendency is sufficient to exclude mycosis fungoides. The glands and the blood having been practically normal, leukemia could not be considered. Kaposi's grouping of mycosis fungoides, lymphodermia perniciosa and true sarcomatosis, including the multiple pigmented variety, under the collective name of sarcoid tumors, is partly to blame for the present unsettled status of entirely different pathologic conditions.

The present case is interesting from several points of view. While the tumors were present both in the skin and internally, we think we are justified in considering the skin the primary seat for the reasons mentioned below. The first tumor appeared on the flexor surface of the left forearm in a warty lesion of long duration in an individual of perfect health. The largest tumors were found in the skin, which permits the theory that they had existed longest and had had more time to develop. If the internal tumors had been present for any considerable time before their appearance on the surface, earlier and more severe constitutional complications would have been observed.

Unusual features of this case were the absence of subjective complaints such as pain or itching; the skin above and around the tumors remained normal in appearance and color until the very last; not a single tumor underwent degeneration and ulceration. Death was caused by asphyxia due to compression of the trachea. The patient was in our care three weeks after the start of his illness until his end, and close observation of his symptoms, microscopic examinations of excised specimens during life and finally a necropsy permitted a thorough study of his condition.

P. N., white, Dane, laborer, aged 39, entered the hospital Dec. 1, 1914, referred by courtesy of Dr. C. F. Baumeister, Avoca, Iowa. His parents had lived to an old age. The patient had always been healthy up to the time of his present illness. There was no venereal history. Three weeks prior to his admission to the hospital he noticed a small subcutaneous nodule on the inside of the left forearm in the place of a pigmented papillomatous lesion which had existed for many years without appreciable change. From this time on new nodules appeared rapidly in different places, until they were present all over the surface, gradually covering most of the body. The lower extremities were least involved. Five hundred and sixty-three tumors were counted. At first they were subcutaneous, the size of a marble and movable. As they grew larger they became adherent to the skin above and to the fascia, muscles and periosteum below. The elevation above the skin became gradually more prominent, reaching the size of a filbert to an orange. The largest were located on the right side of the neck and the inner surface of the elbow of the left arm. Their consistency was hard, almost wooden, with no soft or fluctuating areas. There was no tendency to degeneration and ulceration. The skin above and around the tumors was smooth, normal in color, except in a few, where hyperemia and telangiectases had been produced by compression of the superficial capillaries. The contour of the growths was globular, with a few nodular irregularities. The patient did not complain about itching or pain. He had lost considerable weight since the beginning of his illness, and looked cachectic. He was in a slightly stuporous condition at the time of admittance, and very little information could be gained from him. Toward the last he had difficulties in breathing and swallowing and frequently vomited undigested food. Blood appeared in the feces early.

Blood: Hemoglobin 80 per cent. (Tallqvist). Red blood corpuscles, 5,170,000; the cells irregular in size and shape. White blood corpuscles, 7,180.

Urine: Amber, cloudy, with considerable sediment. Specific gravity, 1.030. No albumin, sugar, indican or blood present. Urates present.

Gastric Examination: Total acidity, 38; free hydrochloric, 4. Lactic acid and blood absent. Considerable mucus and many food particles.

The temperature was nearly normal to the last. The pulse was rapid and feeble.

The patient was considered hopeless from the start and a prognosis was made of a rapidly fatal ending, on account of the extreme involvement. Subcutaneous injections with Fowler solution, 5 drops daily, were tried without results.

On the eleventh day the patient had involuntary bowel movements. From the tenth day on he could not swallow any food and had to be fed by nutritive enemas, which were not retained. He died on the sixteenth day after admittance to the hospital, dyspnea and cyanosis having been extreme during the last days.

The chief pathologic interest relates to the distribution and the structure of the tumors. In the skin these were most numerous and most prominent on the arms, chest, abdomen, back and thighs. The largest mass, which measured 8 by 5 cm. and protruded 4 cm. above the level of the surrounding skin, was present at the inner surface of the left elbow, at a point a short distance from the wartlike growth which had been removed thirteen days before death. Over the right zygoma was a mass 5 cm. in diameter, and beneath the chin another of equal size. The remaining, innumerable nodules varied in size from this down to such nodules as were just visible. With the exception of the two large tumors mentioned, the skin of the face and neck was free. The skin over the largest and medium sized nodules appeared thinned and was intensely congested, with a diffuse, bluish-red color. Over the summits of the smaller nodules fine, dilated, radiating vessels could be seen. No nodules could be seen on the forearms and legs, but very many could be felt beneath the skin, and an occasional very small one could be palpated in the skin of the dorsal surface of the hands and feet. The skin felt firmly attached to the larger masses. The smaller ones were freely movable in the subcutaneous tissue. No nodules were present in the mucosa of the mouth. The superficial lymph nodes were just palpable and apparently were not involved. There was no subcutaneous or omental fat.

Within the body the distribution of the tumors was striking in that, while nodules were present in uncountable numbers, the internal organs themselves were almost entirely free. The heart muscle contained a few, the largest 1 cm. in diameter. Three were present beneath the capsule of the liver, the largest 7 mm. in diameter. Within the left suprarenal was a single mass 3 cm. One loop of the middle third of the ileum, which lay superficially in lower half of abdominal cavity, contained several nodules, the smallest 5 mm., the largest, which was flattened, mushroom shaped, pedunculated and protruding into the lumen, 1.5 cm. in diameter. With the exceptions noted, the internal organs were free of macroscopic tumors, and no tumor tissue was found on microscopic examination.

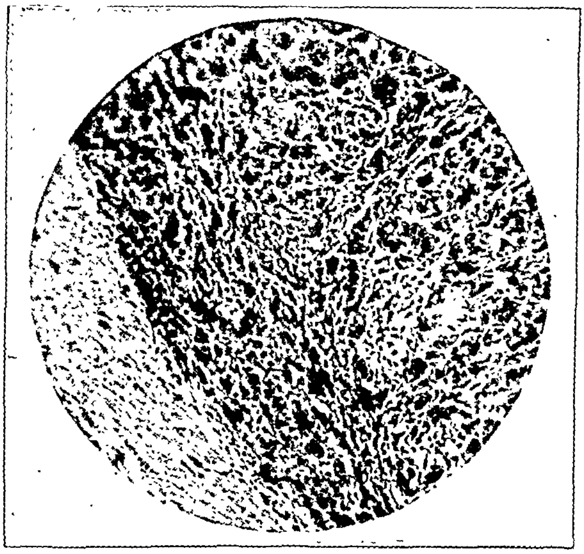

Fig. 2.—Myocardial metastasis. Small alveoli with a minimal amount of intervening stroma. The margin is sharply defined, unencapsulated, and there is no invasion; × 120.

The large number of nodules present within the body were scattered about in the mediastinal, the omental, the mesenteric and the retroperitoneal tissues. Behind the upper end of the sternum was a large multilobulated mass which completely filled in the space behind the manubrium. The posterior mediastinum contained numerous masses, most marked at the hilum of the lung, but not involving the bronchial lymph nodes. In the omentum, the tumors, too numerous to count, varied in size from shotlike nodules to an ovoid mass 5 by 5 by 3.5 cm. Most of the omental tumors were sessile, attached by very fine, long, fibrous peduncles. In the mesentery nodules were also numerous, being largest at the root of the mesentery. Large numbers of tumors were present in the retroperitoneal tissue, the largest ones being present about the kidneys and suprarenals. The pelvic tissues and organs were free.

The site of predilection for the tumors, both in the skin and in the internal tissues, was the loose areolar tissue. The nodules were sharply defined, pale, succulent, translucent, almost fatlike on section. The congestion noted over the large skin tumors was limited to the overlying skin.

Microscopically the alveolar arrangement of the tumor tissue is so pronounced as to suggest carcinoma. The alveoli are round, oval or elongated in shape, and vary considerably in size. In some of the tumors rather broad bands of dense fibrous stroma separate the alveoli; in others only very narrow stroma bands are present. Peripherally the tumor tissue is sharply defined, often surrounded by a thin layer of fibrous tissue. Only in the suprarenal metastasis and in one of the myocardial nodules is there any evidence of invasion at the periphery of the tumor tissue. Growth appears to have been almost wholly expansive.

The tumor cells vary in size and shape. The smallest, which are rounded or oval, average 18 microns in diameter. Somewhat larger cells are polyhedral, and the largest, which may measure 85 microns and more in diameter, are very irregular in outline. The nuclei are round or oval, vesicular, rich in fluid, with finely granular chromatin distributed in the form of a closely meshed network. Some nuclei are hyperchromatic. Most of the nuclei have distinct nucleoli, which stain deeply with hematoxylin. The larger cells are multinucleated; in many the nuclei are multilobulated. The cytoplasm is homogeneous, dense, very finely granular, and stains rather deeply with eosin. The cytoplasm of some of the cells contains light brown pigment so finely granular as to give the protoplasm a diffuse coloration. Mitotic figures are extremely rare. Evidences of direct division, on the other hand, abound, the great majority of the cells having nuclei in stages of direct binary fission or single or multiple budding.

The most striking lesion, histologically, is the tumor removed thirteen days before death from the ulnar surface of the left forearm, just below the elbow. This, which originally had a wartlike appearance, had been present for many years. As has been noted, it had begun to grow three weeks before admission to the hospital. Half of it became transformed into a smooth, rounded mass, identical in external appearance with the multiple tumors which developed so rapidly later. At the time of removal, the entire mass was 3 cm. in diameter and 0.8 cm. thick. It was sessile, attached by a short pedicle 3 mm. in diameter. One half had the rough, papillomatous surface of an ordinary wart; the remainder was round and smooth. Sections through the entire tumor show clearly the coarsely papillomatous character of the original tumor. The smooth portion is identical with the tumor nodules present in the skin and in the deeper areolar tissues. In the papillomatous portion are seen all gradations from the structure of a typical lymphangioma hypertrophicum to that of the metastasizing endothelial tumor tissue. The gradations are not seen in a single papillary outgrowth. The smaller ones contain numerous elongated and bandlike or round nests of closely placed, small, irregularly cuboidal cells. A large amount of granular, dark brown pigment is present beneath the epidermis; some occurs in cells between the lymphangiomatous islands, but the cells of the latter are free of pigment. An occasional thin epidermal downgrowth extends for some distance into the underlying stroma. In a medium sized papillary outgrowth the cellular alveoli are very closely placed and the individual cells are somewhat larger. In a still larger outgrowth occur numerous alveoli identical in appearance with the nodules elsewhere. In this and in the smooth, nodular half of the primary tumor the epidermis is compressed and thin, its under surface smooth.

For the peculiar distribution of the tumors it appears difficult to offer a satisfactory explanation. The parenchyma of the internal organs remained almost wholly free of metastases. The superficial lymph nodes, as well as the bronchial, mesenteric and retroperitoneal nodes, were in general spared. In the clinical and postmortem examination there was no evidence of obstruction to vascular or lymphatic channels, and similar evidence is wanting in the microscopic examination of the tissue about the tumor nodules, although particular attention was paid to this point as offering a possible explanation of the peculiar distribution of the tumor nodules in the skin. In view of the large number of tumors and of their widespread distribution in the deeper tissues as well as in the skin, it appears necessary to suppose a generalized distribution of tumor cells by way of the circulation. But why the development of tumors from such cells was confined almost entirely to the loose areolar tissues is a point in explanation of which we can only suggest variations in tissue susceptibility or resistance.

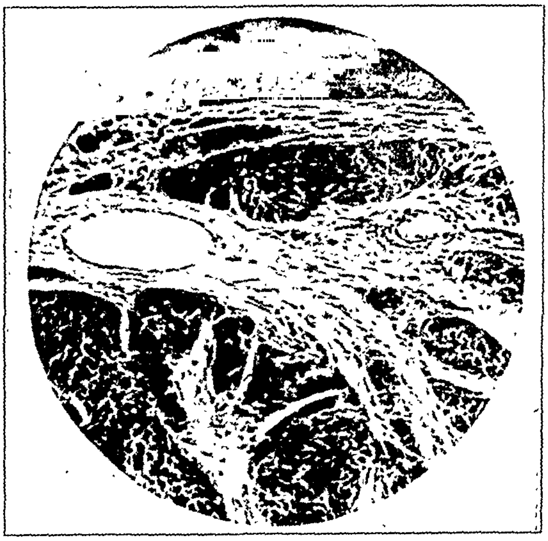
Fig. 3.—The primary tumor. Large alveoli in the subepidermal stroma; × 120.

SUMMARY

Sarcomatosis cutis includes several conditions, the inclusion of some of which among the true blastomas does not appear entirely justifiable. This is true of the idiopathic multiple pigment sarcoma of Kaposi, the presence of true [illegible] cells in this condition also being nc [illegible] absolute certainty. The diffuse sarcomatosis of Kaposi is apparently the same as mycosis fungoides, which, in its earlier stages at least, has the histologic characters of an inflammatory granuloma rather than that of a true tumor. Multiple true sarcomas of the skin may arise from a primary skin tumor or they may be metastases from tumors of the internal organs; structurally they may be round or spindle cell, or they may be composed of pigment cells.

In the case reported, the sarcoma type, if one chooses to classify the tumor among the sarcomas, is the lymphendothelioma.

Over five hundred visible skin nodules were counted. There were in addition very many palpable but invisible tumors.

Innumerable nodules were present in the mediastinal, omental, mesenteric and retroperitoneal tissues. The parenchyma of the internal organs and the lymph nodes remained practically free of tumors.

The primary tumor developed from a papillomatous lesion near the elbow. Histologically this lesion was a lymphangioma hypertrophicum.

The case was characterized by the very rapid development of the secondary tumors. The first change in the previously benign primary lesion was noticed three weeks before admission to the hospital; death occurred on the sixteenth day after admission.

TUMOR OF THE THIRD VENTRICLE

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In a careful summary of the literature, T. H. Weisenburg[1] collected thirty cases of tumor of the third ventricle, and, by a review of the clinical and pathologic findings, established a syndrome. He distinguishes three symptomatic groups:

1. Those cases in which a tumor of a moderate size is situated in the floor of the third ventricle, and in which there is no extension into the foramen of Monro or aqueduct of Sylvius.
2. Small tumors so situated as to obstruct the foramen of Monro and whose position can be changed by deviation of the head.
3. Those tumors, whether large or small, which either extend into the aqueduct of Sylvius, affecting the surrounding structures by direct extension or pressure, or those in which the posterior portions of the cerebral peduncles and pons are compressed, either by direct pressure or by dilatation of the aqueduct of Sylvius.

The first class does not offer specific symptoms, but presents evidences of internal hydrocephalus, namely, headache, choked disk, nausea, vomiting and dizziness. In tumors of large size, indirect pressure on the internal capsule causes paresis of the corresponding limbs. These symptoms may likewise result from internal hydrocephalus alone. The reflexes are nearly always increased. The mental symptoms, generally supposed to be present in tumors of the third ventricle, are attributed by Mott[2] to the impairment of the function of the cortex as the result of the pressure of the dilated ventricles.

The second class is unimportant as but one case has been observed. This group presents a variation in symptoms of headache, nausea and impairment of vision on tilting the head forward.

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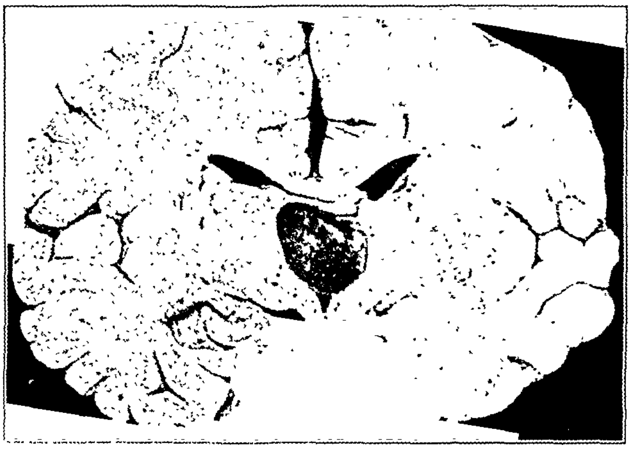
1. Weisenburg, T. H.: Tumors of the Third Ventricle, with the Establishment of a Symptom Complex, Brain, 1910, xxxiii, 236.
2. Mott, F. W., Wakelin Barratt, J. O.: Arch. Neurol., 1900, i, 417.

The third class offers a fairly well recognizable syndrome. The symptoms arise from involvement of the third nuclei, red nucleus, or superior cerebellar peduncles and from pressure on, or destruction of, the posterior longitudinal bundle or the intercommunicating fibers between the third nuclei. Among the symptoms noted are disturbance of associated ocular movements, oculomotor palsies, large pupils with impaired reaction, protrusion of the eyeballs, cerebellar ataxia, symptoms arising from pressure on the pineal gland and the general symptoms of tumor cerebri.

The following case did not present sufficient symptoms to permit localization of the tumor during life, but it possesses an interesting feature relative to the classification of tumors of the third ventricle.

History.—E. O., woman, aged 48, single, dressmaker, with a common school education, was admitted to the Kankakee State Hospital, March 21, 1911. The family history was negative as to points having any bearing on the disease. Nothing was obtainable concerning the patient's childhood. She was ordinarily of rugged health. She was not addicted to the use of alcohol. Nothing was known of any previous illness.

The present illness dated back to July, 1910, when it was noticed that the patient's memory was becoming defective. She became stuporous, apathetic and somnolent and became careless of her appearance, untidy and filthy Further than the fact that she had lost 20 pounds in weight, there was no reliable statement as to her physical symptoms From the patient it was ascertained that she had had dizziness and headache.



Tumor of third ventricle.

Examination.—At the time of admission this revealed a well-nourished woman whose height was 163.75 cm. (5 feet 4½ inches), weight, 91.8 kg. (202 pounds), with no deformities or malformations The skin showed slight icteric tinge. There was no skin eruption. Examination of the lungs showed nothing abnormal. The heart was not enlarged, sounds were normal, pulse was regular, 100 per minute sitting, 108 standing, tension high. Abdominal wall and contents were negative. Organs of generation were negative. Urinalysis showed trace of albumin, pus and blood cells, no sugar.

Neurologic Examination.—Station and gait: The patient stands with lordosis. Sways slightly in the Romberg position. Cannot walk a straight line, gait is shuffling, toes point outward, has difficulty in turning quickly. In walking she bends backward, taking short steps which increase in rapidity, causing the patient to collide with any object obstructing her path.

Active Movements: Right side of the body slightly larger than the left. Left dynamometer 50, right 72. There is no inequality in movements of the muscles of the face. She wrinkles forehead, closes eyes, shows teeth, whistles and opens and closes mouth equally well on both sides. Ocular muscles show no paresis. There is no nystagmus, no exophthalmos. Tongue apparently deviates somewhat to the right when protruded, probably on account of an asymmetry, of the teeth. Articulation is defective, slurring and lisping being present. Active movements of all four extremities are possible and well carried out with good power.

Passive movements show general increase of resistance. Tremors: Slight tremor of fingers, not intentional and more marked on the right side. Tendon and Joint Sense: At times the patient mistakes direction of movements of great toe; otherwise she does not show any change. Approximates finger to finger and finger to nose accurately. There is perhaps a slight clumsiness of movements of the left hand. Sensation: Tests for pain and touch sensibility not well responded to, owing to lack of cooperation. Patient does not take much notice of light touches on the left leg and toes, less on the right. Can feel slightest touch on the face. Makes numerous mistakes as to heat and cold on both sides. Stereognostic sense shows no defect.

Reflexes: Corneal and palatal present. Pupils 2 mm. in diameter, equal, react to light directly and consensually and also in convergence. Epigastric and abdominal present on left, absent on the right side. Plantar reflexes both of flexor type; at times extension of great toes occurs, but it appears to be a voluntary movement. Gordon absent. Has soiled herself several times. No incontinence of urine. Masseters, triceps and wrist jerks equal and normal. Knee jerks increased. Bilateral ankle clonus.

Special Senses: Olfactory normal. Visual fields apparently full. Hypermetropia. Hearing normal. Taste: Sugar is sweet on right, no taste on left; salt is sour on right, bitter on left. Does not recognize vinegar on right, calls it bitter on left. Owing to the mental state of the patient, replies cannot be relied on.

On lumbar puncture the cerebrospinal fluid gushed out, afterward dropped 60 drops per minute. Noguchi and Nonne-Apelt tests negative. Fehling test strongly positive, 2 cells per cubic millimeter.

Mental Examination: The patient is quiet and entirely passive, saying and doing nothing spontaneously. She presents an appearance of fatuous contentment, frequently smiles inanely and takes no interest in her surroundings. She shows no distress concerning the involuntary bowel movements. She is entirely disoriented and does not grasp the meaning of the situation even when it is explained to her that she is in a hospital for the insane. She, however, seems to realize that she is not clear by saying that "things seemed confused," but does not react in any way suggestive of perplexity. Cooperation is poor and she often does not answer questions, apparently from lack of interest. Memory, as far as can be tested, is extremely defective, and she seems unable to retain any facts given as tests of impressibility. The general fund of information also seems to be very deficient. No sense falsifications or delusional trend can be discovered.

The main features are therefore those of extreme mental dilapidation, without any localizing signs on the part of the projection system.

June 2, 1911, difficulty in standing increased. Gait now resembled a continuous falling forward, with an attempt to regain equilibrium. Patient complained of headache occasionally. Memory defect increasing.

July 1, 1911, patient was unable to stand or sit up, and during this week became rapidly weaker. Greatest weakness appeared to be in the lower extremities. In replying to questions, the patient's answers were irrelevant. No abnormalities were noted in the ocular muscles, although frequently looked for.

July 13, 1911, death occurred.

Postmortem examination was limited to the brain. On section there was found a tumor of the third ventricle.

Macroscopically the tumor consists of an encysted colloid growth, situated in the third ventricle and probably originating from the ependyma. It is attached to the inferior surface of the center of the fornix and velum interpositum. It is ovoid in shape, thickest at the center, where it is about 2 cm. in diameter, and rapidly decreasing in size anteriorly and posteriorly to small pealike extremities. The growth originates posteriorly to the anterior commissure, occluding the foramen of Monro on the right side and dilating it also. By virtue of the direction of its growth from left anterior to right posterior, the tumor enters the lateral ventricle of the left side through the foramen of Monro (which it occludes). The ventricular portion of growth is about the size of a pea, greenish, mottled with yellow. The tumor by the growth drags the septum lucidum and fornix to the right and compresses the right optic thalamus more than the left. Below it lies on and separates the corpora albicantia and rests on the infundibulum. The anterior extremity of the growth, which projects into the lateral ventricle, passes above the anterior commissure. The tumor extends backward to a point just anterior to the middle commissure, where it ends in a small pealike growth. A plica in the septum lucidum curved to the right persists throughout. The tumor does not press on the red nucleus or occlude the entrance to the third ventricle posteriorly to the middle commissure.

The pineal gland is not encroached on. The aqueduct is small and the third ventricle above the middle commissure is dilated. The tumor is dark green except at the anterior portion, where it is mixed with yellow. The capsule surrounds it entirely and it is easily shelled out except at the upper and lateral right borders where it tears, showing a colloid, cheesy appearance, spotted with what appears to be degenerated blood pigment. The capsule is attached on both sides to the walls of the lateral ventricles, and the choroid plexus is seen to enter the third ventricle beneath the capsule of the tumor and forms a very slight elevation. The lateral ventricles are dilated, the right more than the left, and the choroid plexus on both sides show the formation of small cysts.

Microscopically the tumor consists of an encapsulated colloid cyst originating from a glioma. At the portion firmly attached to the cyst wall, the greatest number of undegenerated cells and nuclei are found. The capsule at this point is thickened, the connective tissue forming layers, between which are seen numerous lymphocytes, glia nuclei and a few Abraumzellen. The optic thalamus beneath this portion of the capsule is seen to contain a few Abraumzellen and a greater number of neuclei. The tumor proper consists of a greenish homogeneous material, embedded in which are numerous Abraumzellen, staining red with scarlet r. containing many globules, showing black with Bielchowsky stain. Within the Abraumzellen are found nuclei showing fatty degeneration, red blood cells and débris, fatty granules, and at the periphery of the cells, frequently a crescentic flattened nucleus. There are likewise seen throughout the tumor many colloid bodies, nuclei, lymphocytes and red blood cells. There are no fibers found within the tumor mass.

It is interesting to note that of thirty cases of third ventricle tumor collected by Weisenburg, only three extended into the lateral ventricles at all, and these protruded only slightly through the foramen of Monro, as was the case with the tumor here recorded. The tendency for growth is in the direction of the flow of cerebrospinal fluid. It is apparent that this tumor, which occluded the foramen of Monro, whose position did not change with deviation of the head, which did not extend into the aqueduct of Sylvius, and which but slightly compressed the pons, would, according to Weisenburg's classification, be placed in the third group. It would seem possible that, had not this tumor attained such a large size, it would have occupied the same position without resulting pressure on the pons, and, in such case, should properly be placed in a separate group in which the tumor is so situated that it occludes the foramen of Monro whether its position changes with variation in the position of the head or not. The cases in which these tumors are changeable in position should then be classified in a subgroup under this head. The symptoms of the group would be dependent on, first, the degree of hydrocephalus and, second, the amount of pressure on the surrounding structures. Inasmuch as there have been four colloid growths reported which did not extend into the aqueduct of Sylvius, and three other cases, excluding this tumor, which extended into the lateral ventricles through the foramen of Monro instead of the aqueduct of Sylvius, it is highly probable that this group will assume greater importance with the subsequent report of cases.

25 East Washington Street.

THE LESION IN A CASE OF SEROUS COLITIS

ROLFE FLOYD, M.D.
NEW YORK

Between the purely functional diarrheas, on the one hand, in which we believe no anatomic changes are associated with the disturbed activities of the bowel, and the well-defined dysenteries, such as croupous and amebic colitis, on the other, in which evident and often extensive lesions are always present, there lies a large intermediate group of cases, in which it is by no means easy to be sure whether actual anatomic lesions exist or not. The main reasons for our ignorance in this matter are first: such conditions are not, of themselves, fatal in adults so that postmortem examinations are rare; and second, if the changes are only those of congestion and exudation, they may easily be impossible of demonstration after death.

To the group in question, the general term "catarrhal colitis" is applied, and it may be subdivided as follows:

1. Catarrhal colitis in children which may become so severe as to take life, and regularly shows a swelling and sometimes a rupture of the solitary lymph follicles.
2. Catarrhal colitis in adults, with mucus the chief inflammatory product.

The lesion in these cases has been described by Delafield.[1] The lower end of the large bowel is the most frequently inflamed. The pathologic changes are congestion of the vessels of the submucosa and mucosa, with an abnormal quantity of mucus in the cells lining the tubules. There may be some emigration of leukocytes and some diapedesis of red cells. No ulcers occur, and the solitary lymph follicles remain unchanged. There are very frequent small passages composed of a few drams of mucus, in acute cases often blood streaked. Fecal matter is absent at first, and when it appears is usually formed, though very variable in amount. Colic and tenesmus accompany the movements. There is usually some fever.

As an example of this type I find the following among my records:

Case 1.—Man, aged 25, began at 3 a. m. to have repeated small movements of bloody mucus associated with colic and rectal tenesmus. A passage which I saw was composed of about 3 drams of bright bloody mucus and nothing else. The patient had little prostration and no fever and got well in two days with rectal irrigations.

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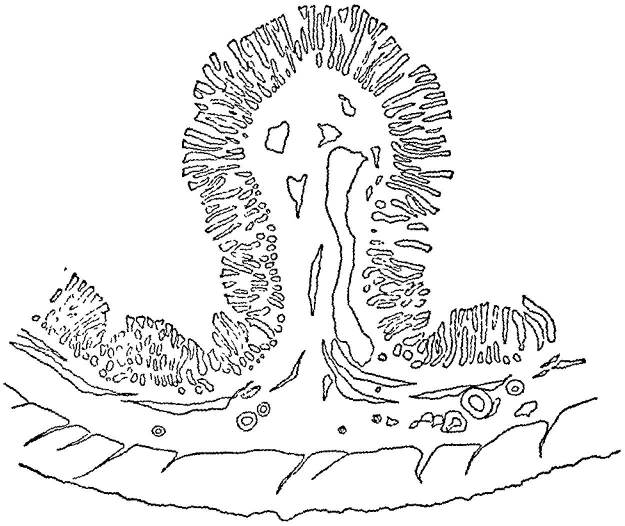
[1] Delafield: Am. Jour. Med. Sc., N. S., 1897, cxiv, 401.

3. Catarrhal colitis in adults with serous fluid the chief inflammatory product.

This condition differs clinically from the foregoing. The passages are copious, from one-fourth to one pint, at first soft fecal, then simply gushes of watery fluid, either green or brown, often preceded by colic but unassociated with tenesmus. Blood does not occur, and mucus is absent or nearly so. The patients are prostrated and may even faint after a large passage. There is little or no fever. The condition lasts longer than the mucoid form, and if untreated, may run for weeks.



Camera lucida sketch of section of colon, showing outlines of the larger lymph channels in submucosa; × 15.

The following case, also from my private records, serves to illustrate the condition.

Case 2.—Man, aged 35, without known cause, was taken with abdominal cramps and chilly sensations followed by fourteen large watery movements in twenty-four hours. The passages contained a few flakes of fecal matter but no mucus or blood. He did not suffer with tenesmus. He vomited once, was nauseated and much prostrated. With rest in bed and appropriate drugs the symptoms promptly subsided.

The lesion of this form of colitis has, I believe, not been described. I wish, therefore, to report the following case from the second medical division of Bellevue Hospital:

Case 3.—A laborer, aged 41, was sick and died of a lobar pneumonia on the eighth day. On the sixth day of his illness, following a dose of salts, he began to have frequent copious watery discharges, without pain or tenesmus, which continued to the time of his death. In the two days he had about twenty passages of brown or green fluid, containing no fecal matter, no blood, and practically no mucus. He did not vomit. At necropsy, three hours after death, the heart was found normal. *The whole right lung was consolidated.* The stomach was distended with gas and a quart of light green, turbid, serous fluid, and its wall was coated with thick, tenacious mucus but not at all congested. The small intestine contained a moderate amount of viscid yellow chyle throughout. There was moderate gaseous distention of the jejunum; it was normal. The colon contained a little gas and was nowhere tightly contracted, though rather smaller than usually seen at necropsy. It was empty through its entire length, containing altogether about a half ounce of soft mucoid fecal matter, mostly in the caput. The mucosa was strikingly clean and edematous, looking as if it had just been washed in running water. There were no congestion, no ulcers, no hypertrophied lymph follicles. Under the microscope the mucosa and muscle coat were normal. The submucosa, only, was markedly thickened by edema, and its lymph spaces truly enormous. The accompanying illustration shows the relative dimensions of the larger ones. There were no congestion, no diapedesis of red or white cells and no follicular hypertrophy. There was marked thickening of the walls of the larger vessels, not due to muscular or connective tissue hypertrophy, but to a homogeneous swelling of their elements.

It is, of course, uncertain, with the bowel symptoms only an incident in the course of a lobar pneumonia and beginning after a saline, whether the lesion is characteristic of serous colitis or not. But necropsies are so rare and the pathologic features of the colon so definite and peculiar and yet so intelligibly associated with a copious serous exudate, that I have thought it proper to put the case on record as a contribution to the pathology of the condition.

A FENCE STAPLE IN THE LUNG

A NEW METHOD OF BRONCHOSCOPIC REMOVAL

Chevalier Jackson, M.D., Pittsburgh

The mechanical problem of the bronchoscopic extraction of an open safety-pin lodged point upward in the trachea or the bronchi is readily solved because of the ease with which the pin can be closed or cut in two for removal. With the double-pointed staple, however, we have to deal with a rigid body of tough steel that cannot be bent, sprung or broken. The author has succeeded in three cases in turning and withdrawing the staple by a method which is best illustrated by the last and most difficult case.[1]

Mr. W., aged 44, was referred to me by Dr. L. P. Warren of Wichita for the removal of a fence-wire staple which had been in the right lung for fifteen days, having been aspirated while being held in the mouth. There were no symptoms after the accident. Roentgenograms made for me by Dr. George W. Grier showed the staple to be in the lower lobe of the right lung (Figs. 1 and 2). Overlaying with my positive films of the tracheobronchial tree showed the

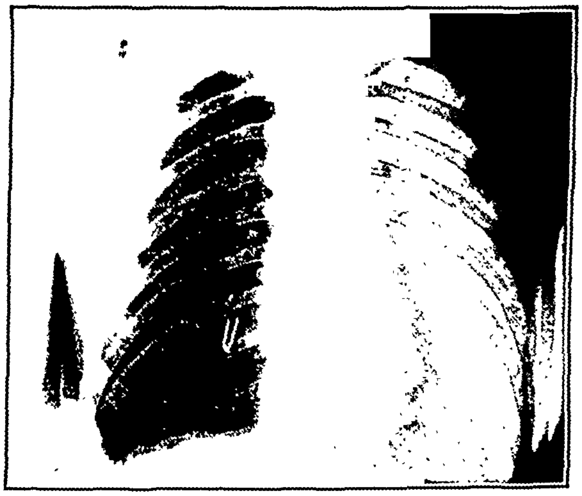


Fig. 1.—Anteroposterior view of chest showing staple in a posterior branch of the inferior-lobe bronchus. (From roentgenogram by Dr. George W. Grier.)

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[1] Since the foregoing was written, a fourth case has been similarly successfully dealt with. The points of a very large staple were turned down into the opposite main bronchus.

staple to be in a posterior branch of the inferior lobe bronchus, the bottom of the staple being 4 inches (10 cm.) below the bifurcation of the trachea. Evidently, as is usual with foreign bodies pointed at one end, blunt and heavy at the other, it had worked down by a ratchet-like movement as far as it could go. Respiratory, pulsatory and bechic movements favored deeper lodgment but were powerless to force the intruder back because of the immediate catching of one or both points.

The bronchoscope was passed under local anesthesia. The staple was found tightly wedged in the smallest bronchus it could enter, evidently having reached this location by the ratchet-like action usual with such foreign bodies. Both points were concealed in swollen mucosa as shown schematically at *A*, Figure 3. Obviously, to pull on such a body would mean the ripping of the bronchial wall and certain death to the patient, even if it were possible to make sufficient traction thus violently to pull out the staple.

Working the body slightly downward with a forked rod passed through the bronchoscope, the points were liberated. The staple was slightly rotated with forceps so as to bring the points in new places. With the combined use of hooks, side-curved forceps and the lip of the bronchoscope the staple was gradually, after many slippings-back, manipulated about 1 cm. upward to a place where a pair of suitably spaced orifices of branch bronchi (*B*, *C*, Fig. 2) were available for the admission of the points. The curved end of the staple, *E*, was seized with my rotation forceps which form an eye on closing. Counterpressure being made with the bronchoscopic lip on the two points, the latter were guided into the branch orifices as traction with the forceps in the direction shown by the dart *F* caused the staple to turn over, loop-end upward. The staple being much too large to enter the bronchoscope, the loop was held against the bronchoscopic tube-mouth, the points trailing harmlessly behind, while the bronchoscope, forceps and staple were all withdrawn together, as shown at *K*. The duration of the entire procedure was one hour and twenty-one minutes, almost all of this time being consumed in the manipulation of the staple the one centimeter upward to the pair of branch-bronchial orifices. The anesthetic being local (cocain, 20 per cent.) the patient held his breath at command for a large part of a minute at many different times. Care was taken not to exceed the normally great resiliency of the tracheobronchial tree.

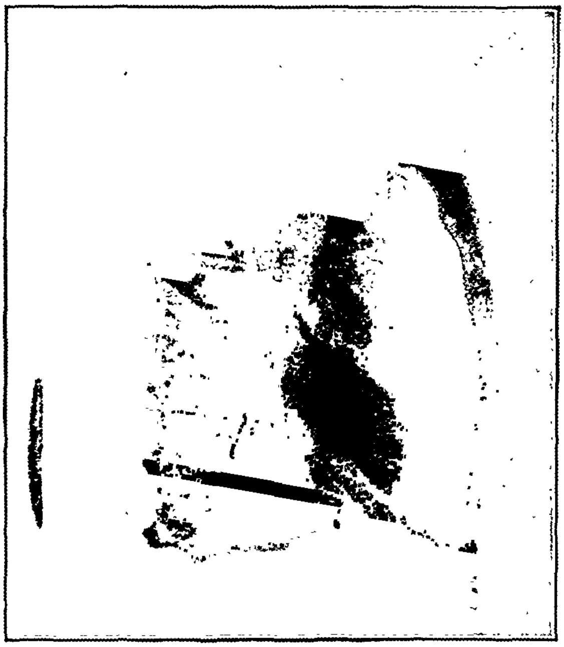

Fig. 2.—Lateral view of chest showing location of staple in lung. (From roentgenogram by Dr. George W. Grier.)

The patient had no rise of either temperature or pulse rate and left for his home in the west on the third day.

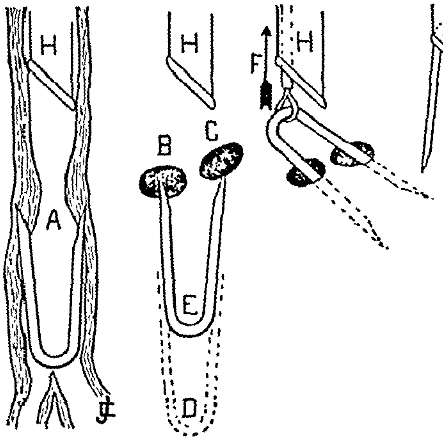

Fig. 3.—Schema illustrating a new method of removal (by version) of bronchially-lodged staples or double-pointed tacks. *H*, bronchoscope; *A*, swollen mucosa covering points of staple; *E*, the staple has been manipulated upward (*D* to *E*) with bronchoscopic lip and hooks until the points are opposite the branch bronchial orifices, *B*, *C*. Traction in the direction of the dart *F*, by means of the rotation forceps, counterpressure being made on the points of the staple, the points enter the branch bronchi and permit the staple to be turned over and removed with points trailing harmlessly behind (*K*).

Fig. 4. — Showing actual size of staple removed from the right lung, bloodlessly through the mouth, by bronchoscopy, after version as shown in Figure 2.

He is now, after three months, perfectly well in every way. The staple is shown, actual size, in Figure 4.

Ninth Street and Penn Avenue.

GAUCHER SPLENOMEGALY DIAGNOSED BY SPLEEN PUNCTURE BEFORE OPERATION *

E. P. Bernstein, M.D., New York

The following report should be of interest as it is the first case of its kind in the literature:

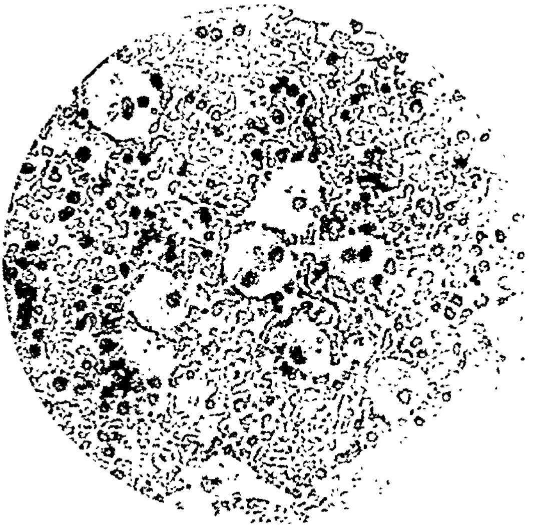

Fig. 1.—Smear from aspirated fluid. Giemsa stain. Low power, showing large multinucleated endothelioid cells.

The patient is the sister of a boy who had been successfully splenectomized by Dr. Henry Roth about two years previously for what was clinically diagnosed as Gaucher's disease and proved so after operation by histologic study of the spleen.

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* From the Pathological Laboratory of the Lebanon Hospital.

Other than this family history and a moderately enlarged spleen, there were no symptoms pointing to or warranting the diagnosis of Gaucher's splenomegaly in the sister. However, she was referred from the Lebanon Hospital dispensary by Dr. Charles Herrman to the surgical service of the hospital under the care of Dr. Parker Syms for operation.

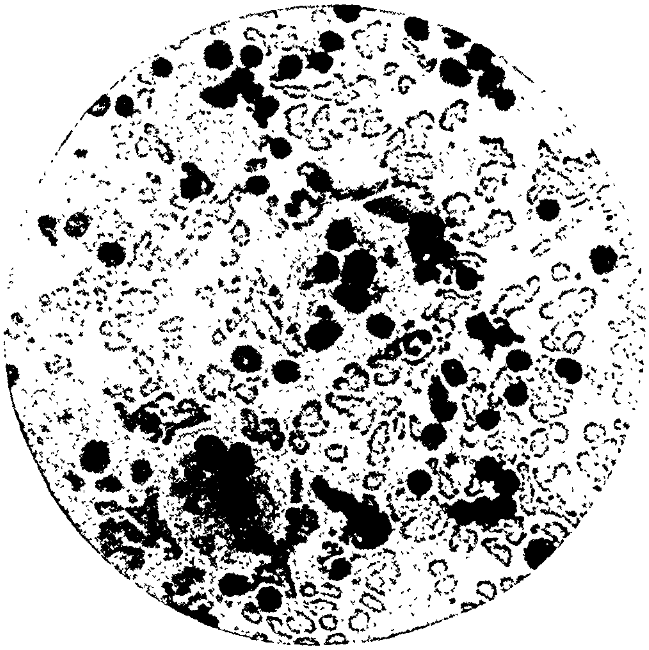


Fig. 2.—High power of Figure 1.

Dr. Syms was kind enough to follow my suggestion of spleen puncture before operation to establish the diagnosis. While the idea has been voiced before, it has never been tried. A simple puncture with a good sized needle and syringe was made and sufficient spleen pulp and blood mixture was aspirated to render a good sized drop in the needle. This was spread over cover glasses, fixed with methyl alcohol and stained with the Giemsa solution. The characteristic multinucleated endothelioid cells were found in abundance and the diagnosis established (Figs. 1 and 2).

The spleen on removal showed the typical pathologic picture of Gaucher's disease both in spreads of the spleen pulp and sections of the organ.

Aspiration therefore has been proved of final diagnostic importance and should be especially valuable in doubtful cases.

A Suggestion for Removing Foreign Bodies from the External Auditory Canal.—Louis S., aged 7 years, in some manner lost the segment of rubber from the end of a pencil in his left ear. With reflected light I found the rubber filling the diameter of the ear canal and close to the drum. Mere touching of the foreign body produced severe pain, and I decided on instrumental removal under anesthesia. With the ordinary ear instruments it was impossible to get behind the obstruction, and while in this predicament it occurred to me that the dentist has a suitable instrument for this emergency. I procured from my dentist a Donaldson spring-tempered pulp canal cleanser. This is a steel wire with spirally arranged barbs. This wire was easily twisted into the mass of rubber, and the firm grip of the barbs enabled me to remove the foreign body with ease. This dental instrument sells for 15 cents, and, placed in a lead-pencil holder, would be a useful instrument for similar emergencies.—F. P. Anzinger, M.D., Springfield, Ohio.

New Instruments and Suggestions

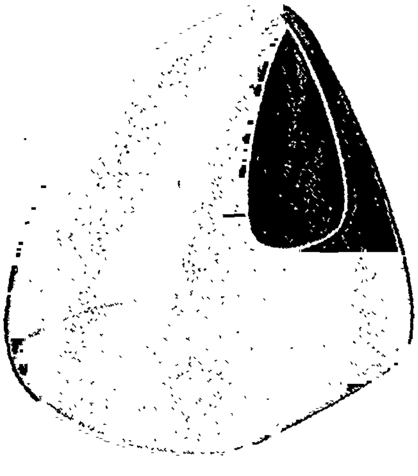
A SIMPLE MEANS OF OBTAINING SPECIMENS OF URINE FROM INFANTS

C. R. Spicer, M.D., Chicago

Routine urine analyses in an infant ward of a hospital disclose the fact that a substantial percentage of these little patients suffer from various kinds of urinary disturbances. Pyelitis and cystitis are common, nephritis by no means rare, as shown at necropsy, while acidosis and other metabolic disturbances are so directly reflected in the urine that, in the light of modern pediatrics, urine analyses are as important in infants as in older patients. The difficulty and inconvenience in procuring specimens of urine from babies, however, has doubtless caused much neglect in these cases.

A method commonly used is to strap a test tube or glove finger over the urinary outlet by means of adhesive plaster. This is usually effective, but it is considerable trouble to apply, even in boys, while in girls it is extremely difficult. Repeated applications of adhesive are also apt to cause excoriations of the skin. Some prefer to place the child on a bedpan. This is often successful, though troublesome, and defecation may also occur and contaminate the specimen. Straps of rubber are made to encircle the body or thighs and hold a test tube in position. While generally effective, they are uncomfortable to the child and troublesome to apply. Sponges and absorbent cotton are used, but with even less satisfaction than the foregoing schemes. The device here illustrated was made to meet the objections to the above methods.

The urinal has two plane surfaces, one on which it rests when not in use; the other, somewhat like a plane vertical section of a cone, is applied to the patient when procuring the specimen. An opening of suitable size and shape is located at the upper portion of this face so as to admit the penis or cover the vulva and admit the urine and exclude the feces. The other aspect of the device is convex, and when in use is covered by the diaper which holds it in place, no other means being required. It is molded in glass of sufficient thickness to withstand any ordinary stress. The capacity is about 15 c.c.



Infant specimen urinal.

The patient may be allowed entire freedom of movement. Owing to the shape of the flask and the location of the opening, it matters not whether he lies on his back, his side or his face, or whether he sits or stands; if urine is voided it will be collected and retained. When the diaper is loosened the urinal remains right side up.

While it was not originally intended to obtain twenty-four-hour specimens, by occasionally emptying the flask, quantitative amounts have been secured. The principal need in infants is a means of procuring a specimen of sufficient quantity for chemical and microscopic examination, free from contamination and without discomfort to the patient or trouble to the nurse. This simple device meets these requirements. It has been in use in the Children's Memorial Hospital for several months.

Children's Memorial Hospital.

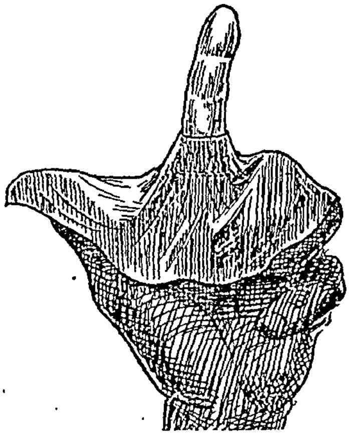
SHIELD FOR PROSTATIC EXAMINATIONS

William S. Ehrich, M.D., Evansville, Ind.

The following is a description of a very simple but exceedingly useful little device to protect the hand in the none too pleasant examination and massage of the prostate gland.

A piece of ordinary dentist's rubber dam is cut in a circle which will have a diameter of 5 inches. Through the center of this, a hole three-eighths inch in diameter is made.

After an ordinary finger cot is slipped on, the finger is pushed through the center hole, which, of course, fits snugly, leaving a margin of at least three-sixteenths inch overhang. This makes a joint which is waterproof, holds the cot firmly, preventing wrinkles, and absolutely protects the knuckles from any dirt on the external parts.



Shield for prostatic examinations.

The shield is easily and quickly made, easily cleaned, and costs practically nothing.

A RELIABLE METHOD FOR TABLE MICROSCOPIC DIAGNOSIS

B. T. Simpson, M.D., Buffalo

Pathologist, State Institute for the Study of Malignant Disease

From the fact that many men who have visited our institute knew nothing of this method, and that "table diagnosis" is in disrepute by many surgeons, it seemed worth while to publish this technic, which I have been using for the past three years. I was led to adopt it by finding that by the usual method of freezing the unfixed tissue, and staining by polychrome methylene blue, sections were sometimes unsatisfactory, and that a diagnosis given in one case was found to be incorrect when further sections were made on fixed tissues.

It seems to me that a great fallacy in making diagnoses at the table is the necessity of returning the report within three minutes. The surgeon expects to take his time with his operative procedure, while he expects the pathologist to be limited to a minimum time, and also to take the responsibility of the extent of the operation and the chances of the future of the patient. After my first mistake I refused to use the three-minute method, and frankly told the surgeons that I did not believe I could make a reliable diagnosis under eight minutes. I am happy to be able to say that, in the three years' experience with the following method, the table diagnoses have been confirmed in every case by further examination by the usual laboratory methods.

The method is as follows: Just before the surgeon is about to remove the tissue, a large test tube, about 2.5 cm. in diameter, containing about 40 c.c. of liquor formaldehydi, is brought to the boiling point and set aside. The removed tissue is laid on a dissecting board and cut with a sharp knife into sections about 5 mm. thick; these are carefully examined for suspicious areas, the selected piece is cut in a square 1.5 cm., put in the liquor formaldehydi, which is heated and allowed to boil for about thirty seconds, the tissue is now put in cold water for a few seconds, and then sectioned on the freezing microtome in the usual way. The sections are stained for half a minute in Harris acid hematoxylin and transferred in a weak solution of ammonia to bring back the blue color, then are run up through 50, 85 and 95 per cent. alcohols, then into 100 per cent. alcohol saturated with alcoholic eosin, then into carboxylol, put on the slide, blotted with filter paper and mounted in balsam. The section obtained by this method is usually as good as any frozen section obtained by the usual laboratory method.

113 High Street.

SOME NEW INSTRUMENTS TO SIMPLIFY THE MODERN TONSILLECTOMY OPERATION*

Francis W. Alter, M.D., Toledo, Ohio

With the multiplicity of instruments already devised for the enucleation of tonsils, one must indeed have a good deal of assurance to bring out something new along these lines. I have felt, however, that the instruments which I am presenting possess sufficient merit to warrant bringing them to the notice of the profession. The combination of instruments which I am presenting has been in use for the past two years, long enough to obtain data as to their practicability and reliability.

The three instruments and devices which I have used for over two years in tonsillectomy are a mouth gag, with a successful *lip retractor;* a *tonsil-seizing* forceps combined with a tongue depressor; and a suction apparatus, with a cut-off.

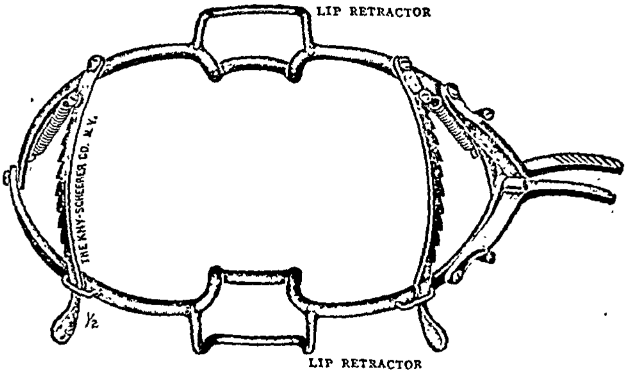


Fig. 1.—Mouth gag with lip retractor.

Figure 1 illustrates the mouth gag, which is a Whitehead gag, with the additional lip retractor. I have had as much trouble with the patient's lips getting pinched prior to the use of this instrument, as the average throat operator.

Figure 3 illustrates the combined tonsil-seizing forceps and tongue depressor, and it has the advantage that it eliminates the assistant whose duty it has been to hold the tongue depressor in position. This combined instrument has the decided advantage of depressing the tongue in the corner of the mouth just where the tongue needs to be depressed.

As will be seen, the lower finger loop of this instrument is open. It has been made this way in order that the snare wire can readily be slipped through this opening and over the upper finger loop.

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* Owing to lack of space, several illustrations are omitted from The Journal. They are included in the author's reprints.

Figure 5 illustrates the suction apparatus. This is an instrument which certainly has a decided field in the modern operation of tonsillectomy. The instrument can be fitted to an ordinary water faucet, and a gage attached to the jar registers the vacuum pressure in the demijohn.

The main advantage of this device is in the manner of working of the suction portion. This part acts as a suction when the small piston at the end is pressed with the thumb, and shuts off the suction when the thumb pressure is released.

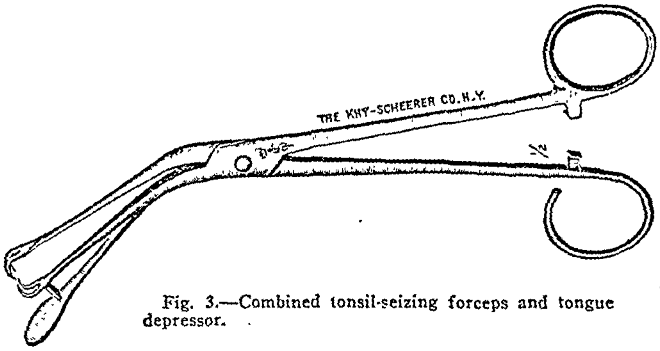

Fig. 3.—Combined tonsil-seizing forceps and tongue depressor.

In the use of this instrument it makes a true bloodless operation. There is no sponging in the throat and consequently less postoperative edema and soreness. It is an excellent device for drawing the uvula well out of the field of the snare wire.

It has the decided advantage that it can be placed in the field of operation, and in spite of oozing, the work can proceed without interference or interruption. It also has the additional advantage of making an even anesthetic and hence less danger of shock and anesthetic calamity through reflex stimulation of the vagus.

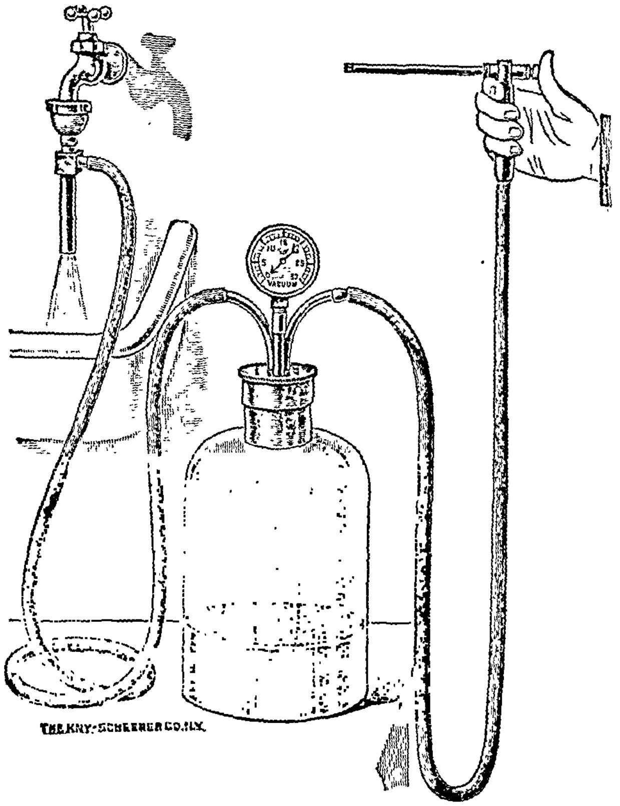

Fig. 5.—Suction apparatus complete, showing the method of holding the cut-off.

314 Colton Building.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 1849)

XXII

EVACUANTS—(*Continued*)

Evacuants may be classified conveniently for study as follows: (1) those acting mainly on the small intestine; (2) those acting mainly on the colon; (3) those acting on the small and large intestines including alkaloidal evacuants; (4) those acting on the rectum; (5) miscellaneous measures for inducing purgation.

1. *EVACUANTS ACTING MAINLY ON THE SMALL INTESTINE*

Oils

Neutral fats and saponifiable oils like butter and olive oil pass practically unchanged through the stomach, but are saponified more or less completely in the small intestine, and the resulting soaps may be sufficiently irritating to the intestinal mucous membrane to cause increased peristalsis and with an excess of the fat or oil act as a mild laxative.

Castor oil, which consists largely of ricinolein, yields a soap that is much more irritating and prompt in its action. The direct influence of the irritation is usually limited wholly or mainly to the small intestine, because these soaps are absorbed into the circulation without reaching the colon. The increased peristalsis in the small intestine rapidly drives a large amount of fluid into the colon, distending it and causing an evacuation before the stools become fully formed, or at least while they are still soft, because a sufficient interval of time is not afforded for as much fluid to be absorbed as usual.

Castor oil acts mildly even in fairly large doses, because the ricinoleic acid is liberated slowly, and the more active the peristalsis the less is the time allowed for the further liberation of the acid, hence, to a certain extent, its action is self-limiting.

THERAPEUTIC USES

Castor oil is used frequently for children, being a dependable laxative or purgative which may be administered without fear of causing intestinal inflammation or disturbing the stomach seriously, but it is not suited for continued use in chronic constipation because of its gradually lessening effect. It is also applied to the skin and to the eye as a demulcent.

The dosage is 15 c.c. (4 fluidrams). The taste is disagreeable, and children manifest an especial repugnance for it, so that it is best administered in such a way that the taste is masked.

Because of its disagreeable taste castor oil is given preferably with pungent, freely frothing beverages, or enclosed in soft gelatin capsules holding about 1 teaspoonful. It may also be administered in the form of a mixture or emulsion and this latter type of administration is becoming popular. The following may be used as a type formula:

	gm. or c.c.	
Benzosulphinid (saccharin).....	0 05	1 grain
Oil of Cloves.................	0 2	3 drops
Oil of Cinnamon...............	0 3	5 drops
Alcohol	4 0	1 fl. dram
Castor oil............q. s. ad	100	3 fl. ounces

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* This is the twenty-second of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

In making this mixture, the benzosulphinid oil of cloves and oil of cinnamon should be dissolved in the alcohol and this in turn added to the castor oil.

Croton oil contains some free crotonoleic acid, which is irritant to the body tissues, hence it irritates the throat and stomach unless measures are taken to prevent it, and it may give rise to nausea and vomiting. It is decomposed in the small intestine, with the formation of crotonoleates. These are far more actively irritating than the ricinoleates, and croton oil causes more violent peristalsis than castor oil; but it may induce intestinal inflammation without purgation.*

THERAPEUTIC USES

Croton oil finds its special field of usefulness in mania and coma, when a prompt evacuation of the bowels is desired.

Its irritant action in the stomach, and the possibility of its causing severe intestinal inflammation limit its use as an evacuant to those cases in which the administration of a rapidly acting drug in small amount is necessary.

The dosage is 0.05 c.c. (1 minim). It may be administered in drop doses placed well back on the tongue, in the form of a pill made with breadcrumb or other absorbent, or diluted with a bland oil and given in a gelatin capsule, or simply dropped on a small lump of sugar which should be swallowed quickly.

Resin Anhydrids

There are many vegetable drugs which contain glucosidal acids, or anhydrids, which induce purgation in much the same way that castor oil and croton oil do. The drugs of this group, as a rule, are only slightly irritant to the stomach, but they become much more actively irritant in the presence of bile and when they reach the intestine cause increased peristalsis. The action of small doses is limited to the small intestine mainly but large doses often cause gastric irritation, with nausea and vomiting, and in addition to the effect on the small intestine some of the drug passes into the colon, causing pain, tenesmus and watery evacuations. Very large doses may cause bloody stools, collapse and even death. Moderate doses of these drugs cause little or no pain, but active peristalsis in the small intestine is accompanied by sounds and sensations due to the movements of fluid and gas.

THERAPEUTIC USES

All the members of this group except podophyllum and its resin are used to secure prompt evacuation of the bowels, and all of them are capable of causing profuse watery stools. Their actions are quite similar, differing only in minor details, hence it is often a matter of no great importance which of the drugs of the group is used in a given case.

They are used for the removal of fluid in dropsical conditions, especially as a preliminary to the use of digitalis and other drugs which promote diuresis. They were formerly used much more for this purpose than at present, and many physicians have abandoned their use in this way because of the dangerous depression which they sometimes cause in those suffering from cardiac diseases, and in asthenic and anemic patients.

These drugs, in doses sufficient to cause watery stools, remove fermenting and putrefying material, as well as bacteria, from the intestinal tract, and repeated catharsis may render the bowel almost sterile for a time perhaps, but large doses of such irritants may injure the natural protective powers of the intestine against bacteria and permit the latter to grow more rapidly than before.

Colocynth extract, resin of jalap or elaterin may be used for the removal of poisons which have passed through the stomach into the intestine, especially when the poison has been taken in a slowly absorbable form (belladonna berries). The action of podophyllum is usually elicited too slowly for this purpose.

The severe irritant action of these agents contraindicates their use in the presence of severe inflammation of the intestine, and large doses are contraindicated in menstruation and in pregnancy, but small doses have practically no effect on the uterus, and may be used without fear of inducing miscarriage or abortion.

The resin anhydrids are sometimes used for the removal of hard dry masses of feces which have been allowed to accumulate in the colon, because of the large amount of water which they drive into that organ. It is more rational to administer a suitable enema when such masses are to be softened, because they do not take up liquid rapidly, and even violent peristalsis may be insufficient to force them through the anus if they are formed into large masses.

Different members of this group have been recommended for the treatment of chronic constipation, and while they are useful at times, it should be remembered that constipation is a symptom of some other condition. It is better to determine the nature of the cause and direct one's efforts toward relieving it than to use the same method of treatment in every case because of the presence of a single symptom. It is impossible to enumerate here any considerable number of the causes of chronic constipation, but it is probable that its ultimate cause may be found in any one of a large number of habits, or minor derangements of various organs. It has been explained that the diuretic action of tea and coffee may augment chronic constipation by increasing the viscosity of the blood; excessive sweating may do this also. The habitual taking of an insufficient amount of water between meals is a common cause, and at least six glasses of cold water should be taken during the day in addition to any liquid that may be taken at meals. An even larger allowance should be taken if one drinks much tea and coffee, provided that this causes diuresis; or if one sweats a great deal. One is apt to suppose that any loss of water from the body in the urine and sweat is quickly made up through the amount taken for the relief of thirst thus induced, and while this is ultimately true, the amount of water in the circulation and tissues varies quite considerably from hour to hour.

An insufficient, or poorly regulated diet, is probably the commonest cause of chronic constipation, even the value of open air exercise being due largely to the increased appetite, as well as to the improved circulation and consequent secretion of digestive juices.

The trouble usually lies in the sluggishness of the large intestine, whether this be due to an atonic condition of its musculature, or to the lack of bulk in the contents received from the ileum, but the choice of the remedy may be governed by the necessity of avoiding irritation in that part of the intestine which is the seat of inflammation; for example, one would not use an irritant to the colon in the presence of appendicitis, even after the symptoms have begun to abate. It is conceivable that muscular atony may be the cause of disturbance in one case, while another presenting much the same clinical picture may be due to some disturbance in Auerbach's plexus.

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* Owing to lack of space the materia medica o. this group is omitted from The Journal. It will be included when this series is published in book form.

DOSAGE

Colocynth is not used in substance; the extract is laxative in doses of about 0.03 gm. (½ grain) and drastic in somewhat larger doses, but nearly all evacuants vary widely in their action on different individuals, and with the same individual at different times. One reason for this is that there are all degrees of inertia of the bowel to be overcome, and just as constipation is due to so many different causes, the dose of any given drug to correct it will vary. It is true, however, that any individual who suffers from chronic constipation, or even from occasional attacks, will usually require approximately the same dose to relieve it at different times. Hence the doses given for the purgatives are approximate only, and the drastic dose for one will be merely laxative for another. In the absence of experience as to the dose required for a given patient it is well to give a small dose at first and repeat it in from four to six hours if necessary, except in the case of podophyllum. Drastic doses are not recommended.

The compound extract of colocynth contains extract of colocynth, aloes, scammony and soap, and belongs to the group which acts on the small and large intestines. It is given in doses of 0.5 gm. (7½ grains). It is much used in the form of the official compound cathartic pill,[2] which is recommended only for its effectiveness.

The dose of elaterin is 0.005 gm. (1/10 grain).

Jalap is seldom used in substance alone, but the dose is stated as 1 gm. (15 grains). The compound powder of jalap, containing potassium bitartrate, acts as a saline, as well as a resin anhydrid.

Podophyllum is seldom given in substance; the laxative dose of the resin of podophyllum is about 0.005 gm. (1/10 grain), the purgative dose is about 0.015 gm. (¼ grain).

Drugs belonging to the group of resin anhydrids are preferably administered in the form of pills or massed and enclosed in gelatin capsules.

2. *EVACUANTS ACTING MAINLY ON THE LARGE COLON*

ANTHRACENE DERIVATIVES

The drugs of this group are said to belong to the group of anthracene, or anthraquinone, derivatives because the crude drugs of the group depend for their evacuant action on one or more substances which may be considered as derived from anthracene ($C_{14}H_{10}$) or from a derivative of it called anthraquinone ($C_{14}H_8O_2$) which differs from anthracene by having two CO groups uniting two benzene rings, whereas in anthracene the rings are united by two CH groups. Hydroxyanthroquinone has an OH replacing an H of anthraquinone, and several hydroxyanthroquinones are present in different drugs of this group. Among the most common are di-hydroxy-anthroquinone, or emodin, and tri-hydroxy-anthroquinone, or chrysophanic acid.

Emodin is present in all the crude drugs of this group, it and other closely related bodies being formed by the decomposition of glucosidal bodies which are present in larger amount in the crude drugs.

These hydroxyanthroquinones pass through the stomach and small intestine causing no irritation and exert their specific action on the colon. They cause purgation after the lapse of about sixteen to twenty hours following their administration in most cases.

Small doses cause normal evacuations attended with little or no colic; larger doses cause soft, or watery stools, which may be preceded by severe colicky pains. This irritant action on the colon contraindicates their use in menstruation and in pregnancy, because they induce reflex irritation in the uterus, increasing the menstrual flow when menstruation is in progress, or tending to cause expulsion of the fetus during pregnancy. It is possible that they also act directly on the nerves supplying the uterus. The action which contraindicates their use during menstruation indicates their employment as emmenagogues when it is desired to institute the flow.

Aloes contains about 10 per cent. of aloin which belongs to the hydroxyanthroquinone group. Aloin is inactive itself but is changed into an irritant amorphous substance in the colon, and on this decomposition product the purgative action depends. The formation of this decomposition product is facilitated by the presence of alkalies and iron, hence aloes and aloin are frequently administered with soap and iron.

Aloes is especially prone to cause uterine contractions, probably because the aloin is absorbed in part and acts directly on the uterus, hence purgative doses of aloes are especially contraindicated in pregnancy, but it is the most frequently used of the group for its emmenagogue action. Aloin, after its subcutaneous injection, is excreted into the large intestine causing purgation, but the injection is painful.

Fresh cascara sagrada contains emodin and also a ferment having an emetic action, but this ferment is gradually destroyed when the drug is stored. It also contains a bitter principle which may be utilized as a tonic but the taste is so disagreeable that many prefer to use a preparation in which the taste is masked, or one from which the bitter has been removed in part.

Rhubarb contains chrysophanic acid and emodin. The chrysophanic acid is quite irritant, but it is absorbed without reaching the colon, hence it does not participate in the typical rhubarb action. The irritant action of chrysophanic acid is utilized therapeutically as an application to the skin in the form of chrysarobin ointment, chrysarobin being a compound of chrysophanic acid. Rhubarb also contains tannin; hence it is astringent in small doses, laxative in large, and the astringency tends to assert itself after the laxative effect has been induced. It sometimes causes nausea and headache. The aromatics present in the aromatic syrup enhance the astringent effect.

Senna contains emodin and a bitter resin, which is removed by percolation with strong alcohol before preparing the fluidextract and the syrup. This treatment does not impair the cathartic action of the preparation but it renders it much less disagreeable to the taste and prevents the griping to a large extent.

PHENOLPHTHALEIN

The action of phenolphthalein is much like that of the other hydroxyanthroquinones over which it appears to possess no very decided advantage; it is capable of giving rise to poisoning when overdoses are used.

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[2] This preparation is a survival of the "shot-gun" type of mixtures; there is a rational basis, perhaps, for the employment of two evacuants having different seats of action, but there is no apparent advantage in using together two substances having such similarity of action as colocynth and scammony.

DOSAGE

The laxative dose of aloes is from 0.03 to 0.05 gm. (½ to 1 grain), the purgative dose (which is not recommended) is from 0.15 to 0.3 gm. (2 to 5 grains). As an emmenagogue the larger dose is employed. Aloes, the extract of aloin, is commonly used with extract of belladonna or atropin in the treatment of chronic constipation, but the continued use of atropin even in small doses is not certainly free from objections, and there seems less reason for its use with small doses of these drugs than with the larger ones used for active purgation. The official compound laxative pill, which is practically identical with certain proprietary preparations, contains 0.8 mg. (1/80 grain) of extract of belladonna, representing about 1/10 mg. (1/650 grain) of atropin. This dose of atropin is probably without material effect on the intestine when a single dose is taken, but the possibility of its disturbing the digestion when long continued is worthy of consideration. The compound laxative pill also contains strychnin and ipecac. The aloin alone in the form of a pill will often act quite as well as the more complex mixture.

To avoid gastric irritation aloes and aloin are preferably administered in the form of pills or, like the drugs belonging to the group of resin anhydrids, massed and enclosed in gelatin capsules. For making the necessary mass it has long been a practice to use soap or one of the gum resins like myrrh or asafetida which have the additional advantage of being somewhat aromatic.

Typical combinations for pills of aloes are included in the several pharmacopeias, the only objection to them being that they are set formulas instead of being adapted to the case in hand. They serve, however, to illustrate the combinations that have been used.

Aloes may be prescribed somewhat as follows:

	gm.	gr.
Aloes	1.3	20
Soap	1.3	20
Mix and make into 10 pills.		
Aloes	1.3	20
Myrrh	0.6	10
Powdered Glycyrrhiza	0.6	10
Syrup a sufficient quantity.		
Mix and make into 10 pills.		
Aloes	1.0	15
Asafetida	1.0	15
Soap	1.0	15
Mix and make into 10 pills.		

The dose of extract of aloes is only slightly smaller than that of the aloes itself, and there are no sufficient reasons for the use of this preparation. The laxative dose of aloin is from 8 to 20 mg. (⅛ to ⅓ grain). Phenolphthalein is given in doses of 0.05 to 0.5 gm. (1 to 8 grains) in capsules or cachets. Larger doses are not to be recommended in case this is not effective. Cascara sagrada is practically never given in substance; the fluidextract and the aromatic fluidextract may be given in doses of 0.6 to 2 c.c. (10 to 30 minims), the smaller dose is for repetition several times daily, the larger dose is given after dinner or at bedtime, preferably so that the action may be induced the next morning. The dose of the extract of cascara sagrada is from 0.1 to 0.5 gm. (2 to 8 grains). One should aim to use the smallest dose which is effective, and reduce this from time to time.

Rhubarb is sometimes used in the form of the powder, or one may obtain the drug in the form of "cubes" or "fingers" which are carried conveniently when it is desired to take several doses during the day. The laxative dose of rhubarb is about 1 gm. (15 grains) or more; with smaller doses—0.1 to 0.3 gm. (1½ to 5 grains) the bitter and astringent actions only are obtained. The dose of the extract of rhubarb is about one-fourth that of the crude drug. The dose of the aromatic tincture is about 2 c.c. (30 minims) and that of the aromatic syrup about 8 c.c. (2 fluidrams). The cathartic dose of senna is about 4 gm. (60 grains) in the form of powder or infusion. The dose of the compound powder of glycyrrhiza (in reality a preparation of senna) is 4 gm. (60 grains). The fluidextract is given in doses of 2 c.c. (30 minims) and the syrup in doses of 4 c.c. (1 fluidram). This dose of the syrup is only half as active as the dose given of the fluidextract.

THERAPEUTIC USES

The evacuants of this group are widely used in small doses as laxatives in the treatment of chronic constipation. Aloes, or aloin and cascara sagrada being especially valuable for this purpose. Cascara often exerts a tonic action on the intestine, permitting of a gradual diminution and stopping of the dose as the intestine regains its normal function.

The irritant action of the drugs of this group is so slight that they may be used in small doses for long periods without giving rise to inflammation, and the colon does not appear to habituate itself to their action, so that the same dose may continue to be effective for years. It is true, however, that with increasing obstinacy of the constipation larger doses are often called for in time, but this is rather from an augmentation of the condition which gave rise to constipation, and not from habituation to the drugs of this group.

Cathartic doses of aloin and aloes are not especially to be recommended, cascara sagrada or senna being preferred in such cases. One of the most effective of the common cathartic mixtures is the old time compound infusion of senna (senna, 6; manna, 12; magnesium sulphate, 12; fennel, 2; water to make 100), which acts on the large intestine and in addition promotes peristalsis in the small intestine by preventing absorption of fluid.

Rhubarb is used in the earlier stages of diarrhea to remove irritating substances and then to check intestinal movements; the aromatic syrup is especially adapted for children.

SULPHUR

One of the important irritants for promoting peristalsis in the large intestine is hydrogen sulphid formed in the course of decomposition of sulphur-containing substances in the large, and also in the small, intestine. The production of hydrogen sulphid can be materially increased by the administration of sulphur through the action of micro-organisms and albuminoids, more particularly the protein substances present in the small intestine. Sulphur is not affected in the stomach. A portion of the hydrogen sulphid formed is absorbed, some of it is oxidized further and eliminated with the urine as sulphates and a portion not so oxidized is eliminated by the skin and the lungs as hydrogen sulphid. The latter rather objectionable feature has no doubt had much to do with the decline in the use of sulphur as an evacuant.

DOSAGE

Sulphur, because of its insolubility and practical inertness, may be administered in liberal doses; 4 gm. (60 grains) being frequently given. It is still used in medicine in the form of the compound powder of glycyrrhiza referred to under senna.

(To be continued)

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SATURDAY, JUNE 5, 1915

NEWER KNOWLEDGE REGARDING INTESTINAL OBSTRUCTION

The search for the cause of the symptoms and death which frequently attend intestinal obstruction has called forth the efforts of some of the most representative American laboratories in the attempt at an elucidation. At present there is an agreement on some of the features of the situation and a few apparent contradictions in respect to others. Few complex problems of immediate surgical interest have been attacked with greater intelligence and promise of solution. The symptomatology and pathology of intestinal obstruction have been considered from many angles, until today it seems possible to make certain general statements which are likely to improve greatly the surgical treatment of a serious condition. One group of investigators has emphasized the loss of body fluids as a factor in the causation of death; another has pointed out the damage to the intestinal mucosa which must usually be reckoned with; still others have directed attention to the rôle of the ensuing interference with the circulation in the obstructed bowel, and to the opportunity which this offers for an unusual performance on the part of alimentary bacteria.

Interesting though the history of this chapter of medical research may be, there is little practical advantage at this time in reviewing the steps in the direction of the progress made. Most, if not all, of the observers believe that the serious symptoms and death are the result of a toxemia. Where and how the responsible toxin is produced and absorbed has not been so easy to determine. In the words of the most recent contributors in this field, "When the problem of intestinal obstruction is reduced to its fundamentals, it seems that there is not such a wide difference of opinion between the experimental workers, except as to the source and the physical and chemical characteristics of the toxic material which is responsible for the symptoms and death, the apparently contradictory statements being more the result of undue emphasis on different factors, and the failure to distinguish clearly between the production and absorption of the toxin."

To a certain extent, Murphy and Brooks[1] of the Washington University Medical School have reconciled the conflicting opinions.[2] The toxins which are present in the content of the obstructed bowel and which, when absorbed in sufficient amount, produce the definite pathologic lesions, are the result of bacterial growth. It has been possible, after continued drainage, to obtain a jejunal loop which was sterile. Occlusion of this failed to produce the usually expected death; and the accumulated fluid was not toxic as it ordinarily is when bacteria are present. The toxins are not specific for any part of the intestinal tract, as was earlier believed by some of the investigators. Following the obstruction and interference with the nutrition of the gallbladder containing intestinal bacteria, symptoms identical with those of intestinal obstruction may be observed. The contents of such a gallbladder, even after sterilization, produce symptoms and a pathologic picture identical with that following the injection of the content of an obstructed segment of intestine. A sterile gallbladder, however, can be obstructed up to the point of complete gangrene without the appearance of symptoms or the development of toxic contents.

The toxic substance does not pass through a normal mucous membrane. This is a fact of major significance, so that in the production of harmful effects, the factors which make absorption possible are of more importance than those which produce toxin. Interference with the circulation of the obstructed intestine helps to institute the damage that permits of abnormal absorption. It has been puzzling to find that simple obstruction of a segment of the duodenum or jejunum results in earlier or severer symptoms than similar obstruction of the ileum. It appears, however, that the more abundant secretion into the upper bowel leads to a more rapid distention and consequent circulatory disturbance of the bowel wall. The toxin may enter the circulation by way of the thoracic duct.

It is still too early to generalize about the nature of the poisonous substance. Its chemical and physical characteristics are stated to vary with the duration of the obstruction. The effects in respect to symptoms and lesions produced seem to resemble those attributed to so-called ptomains.[3] The outcome of the foregoing studies already furnishes valuable guidance in a practical way. In the surgical treatment of cases of intestinal obstruction, that part of the intestine with a mucous membrane which has been so damaged as to permit of abnormal absorption should be resected rather than drained. The restitution of the body fluids lost must also not be neglected.

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[1] Murphy, F. T., and Brooks, B.: Intestinal Obstruction: An Experimental Study of the Causes of Symptoms and Death, Arch. Int. Med., March, 1915, p. 392.

[2] The literature of the subject, including particularly the work of Murphy, Whipple, Hartwell and their collaborators, is given in the paper already referred to.

[3] Faust, E. S.: Arch. f. exper. Path. u. Pharmakol., 1904, li, 248; Die thierischen Gifte, Braunschweig, 1906.

THE USE OF ALKALIES IN ASIATIC CHOLERA

It is not far from the truth to say that until recently the treatment of cholera has been essentially expectant and symptomatic. Specific antiseptic substances administered by mouth to inhibit the growth of the infecting organisms in the alimentary tract have been without value. Attempts have been made sometimes to expel the bacterial invaders by the use of purgative drugs. Yet such procedures fail to bring any relief whatever to some of the consequences and complications that attend the original intoxication. Prominent among the latter are the renal lesions, not infrequently accompanied by uremia.

Dr. A. W. Sellards[1] of the Johns Hopkins Hospital, who has had an extensive experience in the treatment of cholera in the Far East, has lately pointed out that some of the symptoms of uremia which resemble toxemia are due, *not to the presence of a foreign* toxin, but to the depletion of a normal constituent of the blood. In cholera, according to Sellards, there is a greatly increased tolerance to alkali bicarbonate. This tolerance, however, is not specific for the nephritis of cholera. It occurs not only in nephritis arising from other infections, but also in the nephritides which are free from infection. In this respect, therefore, there is a close relationship between the renal lesions of Asiatic cholera and the ordinary forms of acute and chronic nephritis. In renal disease (chronic interstitial nephritis and primary contracted kidney) a group of clinical symptoms, including dyspnea, changes in the alkali content of the blood, and decrease in its quota of carbon dioxid, reach their height during the stage of uremia. Similarly uremia, which follows the common renal disturbances of cholera, is plainly something more than a mere intoxication. The death rate from the uremia alone has been higher than in the majority of the common specific bacterial infections.

It is at this stage of reaction in cholera, when the evidence of nephritis is becoming prominent, that a distinct *increase in the tolerance* to sodium bicarbonate develops.[2] Sellards has described it as a clinical picture of acidosis. It seems best, however, to avoid the use of this ill-defined term, which means intoxication with acid in its original sense. As Fischer remarks: The word "acidosis" has had its meaning twisted so greatly to suit the whims of different authors that it might well disappear from our medical and physiologic writings. The mere finding of various acids or "acidosis compounds" in the urine or elsewhere does not yet mean an acid intoxication. The acetone bodies of the diabetic do not betray an acid intoxication, but an altered chemistry from which an acid intoxication may result. A normal or abnormal acid may be produced in great quantities in the organism and appear in the urine, yet if sufficient base is available they are neutralized and so are practically without effect.[3] What Sellards actually implies to be the nature of the "acidosis" associated with the nephritis and uremia of cholera is an impoverishment of the sources of fixed bases in the body.

This deficiency in carbonates, with its train of symptoms ending in coma and air hunger, is conceivably attendant upon a diminished excretion of acid on account of urinary changes due perhaps to impaired functional capacity of the kidneys; or it may be attributable to loss of alkali directly by the bowel during the excessive purging that occurs. In any event, Sellards believes that the clinical evidences are sufficiently definite to constitute a rational basis for treatment of the uremia of cholera with alkalies in the form of bicarbonate. He maintains that in practice it has proved far more efficient than the use of solutions of sodium chlorid, which have been employed with some success in the stage of collapse to restore the fluid lost from the body.

Alkali therapy in cholera is not entirely new. The attempt of Sellards is in the direction of a more rational application of the principles discussed above. It is regarded as advisable to give a mildly alkaline solution (0.5 per cent. of sodium bicarbonate) early in the course of the disease, before an outspoken uremia has developed, and to increase the quantities if symptoms of uremia appear. As much as 100 grams (3½ ounces) of bicarbonate may be required in the course of two or three days. Experience in two epidemics of cholera speaks favorably for this mode of treatment.

THE TREATMENT OF INFECTIOUS DISEASES WITH THE SPECIFIC SERUM OF CONVALESCENTS

Shortly after the discovery of diphtheria antitoxin, numerous efforts were made to find antitoxins for various other infectious diseases, as it was believed that the principle illustrated by the treatment of diphtheria with antitoxic serum was one of general application. It soon was learned, however, that only in diphtheria and tetanus is recovery dependent on the direct neutralization of definite toxins by specific antitoxins. In the course of this search for specific methods of treatment it was proposed to use the serum of convalescents from attacks of certain familiar infectious diseases. Thus, Weissbecker[1] tried the subcutaneous injection of 10 c.c. of the serum of convalescents in measles, scarlet fever, typhoid fever and pneumonia, reporting good effects especially in the latter disease. He reasoned that recovery from these diseases is the result of a natural immunization, and that consequently the blood of convalescents may be assumed to contain specific antitoxins or, more broadly, specific antibodies.

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[1] Sellards, A. W.: The Relationship of the Renal Lesions of Asiatic Cholera to the Ordinary Nephritides, with Especial Reference to Acidosis, Am. Jour. Trop. Dis., 1914, ii, 104.

[2] Sellards, A. W.: Philippine Jour. Sc, B., 1910, v, 363.

[3] Fischer, M. H.: Edema and Nephritis, New York, John Wiley & Sons, 1915, p. 640.

[1] Weissbecker: Ztschr. f. klin. Med., 1896, xxx, 312; 1897, xxxii, 188.

Huber and Blumenthal[2] were impressed favorably with the effects of specific convalescent serum in scarlet fever, measles and pneumonia, and von Leyden[3] described sixteen cases of scarlet fever treated in this way, in three of which crisis occurred immediately after the injection of the serum, the quantity of which varied from 10 to 20 c.c. In one case the development of the rash was arrested. Von Leyden makes no mention of the exact time after the attack when he obtained the serum. This report was followed during the next year by a few further reports mostly with "good results"; but now the method fell into abeyance until 1912, when Reiss and Jungmann[4] described their results in cases of scarlatina gravissima.

Reiss and Jungmann used serum obtained about the end of the third week after the onset, injecting from 50 to 100 c.c. intravenously. Twelve cases are described, all injected not later than the fourth day, and in all there followed a rapid improvement as by crisis within fourteen hours or so, which was in marked contrast to the course in cases not so treated, in which recovery by crisis occurred only occasionally. The serum did not seem to have any effect on secondary infection. In some cases the rash faded away immediately after injection of the serum. Koch[5] reports on twenty-eight additional cases, treated with convalescent serum in the same hospital. Only one death occurred, and in that case the patient was moribund when admitted. Koch emphasizes that in this series of extremely severe, toxic scarlatina, hemorrhagic nephritis did not develop, that the improvement in many cases was as striking as that seen in diphtheria after injection of antitoxic serum, and that the serum must be injected intravenously in quantities not less than from 50 to 100 c.c. even in small children, and not later than the third day. Koch also reports good effects in twelve cases injected intravenously with normal human serum, and Rowe[6] was unable to convince himself that there were any different effects in cases treated with normal and with convalescent serum. Koch, however, states that the superiority of convalescent serum is seen clearly in the very severely toxic cases with coma and cool and bluish skin. In order to secure the best effects, the mixed serum from several convalescents is used after it has been stored for some time. The serum should be obtained about twenty-one days or thereabouts after the onset. The most rigid tests must be used to determine freedom from tuberculosis and syphilis on the part of the donors, and the sterility of the serum established by cultural methods. In hospitals for scarlet fever there need be no difficulty in having on hand suitable serum from convalescents. Koch suggests that such serum be reserved for the gravest cases, and that otherwise normal serum be used. As yet no explanation is offered of the alleged benefits of normal serum. Schultz[7] believes he has shown that the effect does not depend on lipoids that are extracted in the cold.

Netter[8] recently has used the serum of persons who had had poliomyelitis in the treatment of the acute attack, giving the serum intraspinally in small doses repeated daily. He says the results were good.

If we ask what we can expect from this method of specific treatment, the answer must be that only by continued critical observations can its value be determined. Certainly the results described in the severe toxic forms of scarlet fever fully warrant extended trial under suitable conditions, and that would mean in hospitals where convalescent serum can be kept on hand in such mixtures as are most likely to insure some specific antiscarlatinal virtues. Where such serum is not obtainable, there certainly is no reason why sterile, nontoxic, normal human serum may not be tried in severe and desperate cases.

THE SIGNIFICANCE OF THE PUPILLARY REACTION TO EPINEPHRIN

When a solution of epinephrin is instilled into the conjunctival sac, no noteworthy effect is produced on the pupil of the eye. After complete excision of a superior cervical ganglion of the sympathetic nervous system, however, similar introduction of epinephrin causes a dilatation of the pupil on the operated side. This was demonstrated by Meltzer[1] at the Rockefeller Institute for Medical Research in 1904. The degree of pupillary dilatation depends on the quantity instilled. It can easily be made maximal and may last for some time. The myotic effect of physostigmin is also overcome by instillation of epinephrin.

The dilatation of the pupil is accomplished by the contraction of a muscle, the dilator pupillae, just as the constriction of the pupil is accomplished by the contraction of the constrictor pupillae. These muscles are exact antagonists. When one is contracted the other is relaxed; and it seems to be an established conclusion that the relaxation is an active one, so that the changes noted at any time can take place promptly, rather than gradually. According to Meltzer's view, the normal effect of the superior cervical ganglion is to inhibit the dilator and to stimulate the constrictor, and the effect of suprarenal extract is just the reverse of it, that is, to excite the dilator and inhibit the constrictor. Epinephrin can, therefore, show its proper effect only after the antagonistic activity of the ganglion is removed.

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[2] Huber and Blumenthal: Berl. klin. Wchnschr., 1897, xxxiv, 671.

[3] Von Leyden: Deutsch. Arch. f. klin. Med., 1902, lxxiii, 616.

[4] Reiss and Jungmann: Deutsch. Arch. f. klin. Med., 1912, cxii, 70.

[5] Koch: München. med. Wchnschr., 1913, lx, 2611; Deutsch. med. Wchnschr., 1915, xli, 372.

[6] Rowe: Med. Klin., 1913, ix, 1978.

[7] Schultz: Deutsch. Arch. f. klin. Med., 1914, cxv, 627.

[8] Netter: Bull. de l'Acad. d. méd., 1914, lxxviii, 523.

[1] Meltzer, S. J., and Auer, Clara Meltzer: Studies on the "Paradoxical" Pupil-Dilatation caused by Adrenalin, I, The Effect of Subcutaneous Injections and Instillations of Adrenalin upon the Pupils of Rabbits, Am. Jour. Physiol., 1904, xi, 28; II, On the Influence of Subcutaneous Injections of Adrenalin upon the Eyes of Cats after Removal of the Superior Cervical Ganglion, ibid., p. 37; III, A Discussion of the Nature of the Paradoxical Pupil-Dilatation Caused by Adrenalin, ibid., p. 40.

We have reviewed these physiologic investigations in some detail in order to afford an interpretation of the observation made by Loewi,[2] in 1908, that instillations of epinephrin produce dilatation of the pupils in animals after excision of the pancreas also. Loewi based an explanation of this mydriasis on the facts already cited. He assumed that the pancreas exerts an inhibitory influence on the sympathetic system, so that the removal of the gland would bring about a situation comparable to that noted after extirpation of the cervical ganglion. After either procedure the introduction of epinephrin into the conjunctival sac can induce mydriasis. Loewi attempted a practical application of these phenomena by examining the pupillary responses of persons suffering from various diseases, particularly diabetes. The discovery of positive mydriatic reactions after epinephrin instillations in several of these cases suggested this as an indicator of pancreatic involvement. The reaction has accordingly been proposed as a test for pancreatic disease, and particularly diabetes of pancreatic origin.

It is now reported by Loewy and Rosenberg[3] that the mydriatic reaction of Loewi can be brought about in any condition in which there is an excess of sugar circulating in the blood. Not only can the characteristic pupillary response to epinephrin be produced whenever hyperglycemia results in animals after intravenous infusions or even liberal ingestion of glucose, but it also ensues when the sugar level of the blood is raised by certain drugs. The Loewi phenomenon, therefore, cannot be correlated solely with the pancreas, except on the improbable assumption that this gland becomes involved in every condition of hyperglycemia. The reaction can no longer be regarded as a characteristic test of pancreatic function.

In the hypoglycemia produced by phlorizin, the mydriatic response to epinephrin cannot be obtained, despite the prominence of the resulting glycosuria. Perhaps we may now assume that an excess of sugar in the blood directly affects the sympathetic inhibitory factors. It remains to be determined by clinical studies whether the pupillary reaction can be used to distinguish between true diabetes with an attendant hyperglycemia and the glycosurias of renal origin in which the level of the blood sugar is not raised. The introduction of satisfactory clinical methods of blood analysis has to some degree rendered other procedures superfluous.

PELLAGRA IN BESSARABIA

In spite of the rather severe criticism to which his work was subjected at the last meeting of the Italian Pellagrologic Congress, Tizzoni apparently has modified but little, if at all, his idea that pellagra is an infectious disease due to the micro-organism which he claims to have isolated from those sick of the disease, and which he has named *Streptobacillus pellagrae* (T). Recently[1] he has reported work done by him during the past year. In addition to his bacteriologic studies, observations on pellagra were made in Bessarabia, Russia. These observations are incomplete, the war having interrupted his work; but in spite of their fragmentary character, they possess interest.

Briefly, he states that pellagra is very prevalent in Bessarabia, and that the disease shows there an intensity unknown in Italy now for many years. In one village of 3,000 population there were over thirty cases. The disease is much more prevalent in northern and central than in southern Bessarabia, but he could see no reason for this geographic restriction. Cases were not uncommon with diminished urinary secretion, bladder irritability, albuminuria and edema of the face. The disease is observed there rather frequently in infancy, sucklings at six to eight months being often stricken.

The hygienic conditions obtaining among the people are bad, the water supply is suspicious, and their food is monotonous in character, none too abundant in quantity, and of poor quality—mainly maize and that of poor grade. Their diet in large part consists of bread made of maize and wheat flour mixed, polenta, and a kind of soup or broth made from maize.

These data from Bessarabia broadly coincide with observations recorded for other places where pellagra prevails, but we also find here, as elsewhere in dealing with this disease, one or two particulars at variance with recorded observations. The prevalence of pellagra in Bessarabia, if we may judge by the one small group of people mentioned by Tizzoni, is less than that reported for some places in the United States. Even in Italy, where the disease seems to have been on the decline for some years now, there are doubtless some places which still exceed this rate. The highest recorded prevalence of pellagra in the United States is perhaps found among the mill village population of South Carolina, approximately 150 per 10,000 of population.[2] The intensity of the disease in Bessarabia would indicate, as Tizzoni appreciates, that its advent there is perhaps more or less recent. The first appearance of pellagra in a population seems often attended by severe manifestations, to be later

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[2] Loewi, O.: Ueber eine neue Funktion des Pankreas, Arch. exper. Path. u. Pharmakol., 1908, lix, 83.

[3] Loewy, A., and Rosenberg, S.: Beitrag zur Entstehungsweise des O. Loewischen Pupillenphanomens, Biochem. Ztschr., 1914, lxvii, 323.

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[1] Tizzoni, G.: Relazione sulla campagna pellagrologica per l'anno 1914, Bologna, 1915. Tizzoni, G., and De Angelis, G.: Significato ed importanza del polimorfismo dello streptobacillus pellagrae (T), Reale Accad. dei Lincei, Series 5, Vol. X, Fasc. XV, 1914.

[2] Thompson-McFadden Pellagra Commission, First Progress Report, New York, 1914; Second Progress Report, New York, 1915.

followed by a much milder type of the disease. In a general way, this is the history of pellagra in most places involved. The most obvious interpretation of such a phenomenon would be sought in a kind of acquired racial immunity, but this is not supported by the very evident fact that individual pellagrins apparently develop little immunity to the disease.

The restricted geographic distribution of pellagra in Bessarabia is quite in accord with what has been observed elsewhere. For example, southern and insular Italy have suffered from the disease practically not at all, and in the United States it is very largely confined to the South.

Cases of pellagra with renal involvement are not rare, but such marked evidences of renal inadequacy as Tizzoni reports are not common. The observation of pellagra in infants from 6 to 8 months is a striking thing. Pellagra in infants is by no means unknown, but it is certainly far from common. The frequency of this occurrence in Bessarabia is an epidemiologic observation of importance.

Bad hygienic conditions, and especially poor food have always accompanied pellagra. What factors they play in its etiology remain to be determined.

Much of Tizzoni's work during the year has been devoted to cultural studies of his micro-organism, and he discusses with considerable fulness its rather remarkable polymorphism, the micro-organism assuming numerous forms under changed biologic conditions. Indeed, he thinks he might better call it the pleomorphic streptobacillus of pellagra.

Tizzoni is a pronounced zeist in his views, holding that the infection in pellagra is derived from corn. It is interesting to note, therefore, that he admits in this paper the existence of the disease in persons who do not eat this grain. It is also of interest to note the gravity with which he, and indeed many other Italian scientists, discuss the question of pseudopellagra. This conception is largely based on the history of the case with regard to the consumption of maize, and has received scant sympathy among American students.

Tizzoni has studied pellagra for several years, and has written voluminously on his views. His observations remain, however, practically unconfirmed, and, whatever be the individual opinion as to the cause of pellagra, his presentation of the matter is not likely to meet approval in this country. Leaving aside the lack of any confirmation of his work and the very remarkable pleomorphism of the micro-organism he describes, his writings display an effort to create harmony between laboratory results and clinical and epidemiologic facts—harmony too perfect, too beautiful and too soul-satisfying. Such beautiful harmony is rarely realized in actual conditions, and its presence would, in the minds of the wary, be far more likely to produce skepticism than conviction.

One might safely venture the statement that, up to the present, Tizzoni's work has done very little toward giving material help in the solution of the etiology of pellagra. In the present state of our knowledge regarding this perplexing problem, however, we cannot well afford to abandon a safe judicial attitude, and in conformity therewith we cannot entirely neglect Tizzoni's work, however unpromising it may appear.

FACTORS DETERMINING PHAGOCYTOSIS

The mechanism of phagocytosis, that is, the engulfing of bacteria, cells, tissue products, etc., by leukocytes, is usually interpreted in terms of chemotaxis. Substances present in the environment are believed to exercise a sort of directive influence, either attractive or repellant, on the phagocytic cells. Since the stimuli most likely to reach the leukocytes from a foreign agent and bring about an alteration in their movement and performance are chemical in nature, the importance of "chemotaxis" in phagocytosis and leukocytosis is everywhere emphasized.

This familiar attempt at an explanation of the behavior of leukocytes cannot readily be applied to the undeniable phagocytosis of insoluble, chemically inert particles like coal dust or carmin granules. Leukocytes have frequently been seen to enclose these with the same avidity that they engulf bacteria. It has been surmised, without further evidence, that the foreign particles in some way acquire a coating from some component of the solution in which they are suspended, and thus acquire chemotactic properties.

In his early researches on phagocytosis, Metchnikoff interpreted the phagocyte-enhancing power of the medium as a stimulation of the leukocytes. Wright demonstrated that the essential regulating influence affecting phagocytosis rests on the action of the serum on the bacteria, when they are the factors involved. Hektoen and Ruediger[1] have furnished classic evidences of this. They showed that human leukocytes in the presence of normal defibrinated blood will take up bacteria energetically. When the leukocytes, however, are washed free of blood and added to untreated bacteria, phagocytosis is practically nil. If such washed leukocytes are mixed with bacteria that have been previously in contact with serum, active phagocytosis will take place. In other words, the bacteria have been altered by the serum in such a way that they are now amenable to phagocytosis by washed leukocytes. The serum then acts on the bacteria and not on the leukocytes.

These now familiar observations serve to remind us that the conceptions of the mechanism of phagocytosis have been altered with the progress of time. Much remains to be explained, particularly where the chemical theories fail. Kite and Wherry[2] have looked in another direction for an answer. They suggest that the amount of adhesion in a mixture of leukocytes, bacteria and unheated serum must depend on the relative stickiness of the bacteria and the leukocytes. In harmony with observations on the adhesive character of the surface of certain amebas, it is now shown that agitation of suitable mixtures of leukocytes and bacteria causes the latter to stick to the blood cells and become rolled into their substance. Experiments with a minimum amount of agitation show that here "phagocytosis" is reduced.

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[1] Hektoen and Ruediger: Jour. Infect. Dis., 1905, ii, 132.

The rôle of the serum, which is so important in all modern chemotactic considerations of phagocytosis, is interpreted in the following way by Kite and Wherry: Foreign particles, such as carbon, are taken up by leukocytes because the latter have sticky surfaces. Bodies similar to many bacteria stick to leukocytes best in the presence of unheated serum because they adsorb something from this medium which makes them more sticky; or they are in some way rendered more sticky, and hence the chances of their adhering to the surfaces of leukocytes are increased. There is evidence that, even in the absence of serum, certain leukocytes are sticky enough to allow some bacteria to adhere. The casual reader will possibly conclude, however, that there is quite as much uncertainty in the physics of stickiness as in the chemistry of chemotaxis.

Current Comment

THE FLY CAMPAIGN IN DETROIT

The injunction to "swat the fly" has become general all over the country. To this in the last few years has been added the additional injunction to swat him early. Spring fly campaigns are now a feature of the public health work in many of our cities. An especially effective popular movement in this direction is now being carried on in Detroit, under the direction of the local board of health. Taking advantage of the human fondness for rivalry and competition, the boys of the different wards and sections of the city are being organized under one chief junior sanitary inspector and twenty-four junior sanitary inspectors. Under each inspector are from five to seven captains. Under each captain are from two to seven lieutenants. This furnishes a force of twenty-four inspectors, 125 captains and 600 lieutenants. Each lieutenant has as many patrolmen as he can enlist. In all, over 1,000 boys are enrolled in this movement. Each of these young health workers is provided with a suitable and imposing badge. Each lieutenant is provided with a map of his district which he returns, showing all manure piles, uncovered garbage receptacles, breeding places for flies and other insanitary conditions in his district. Restaurants, meat markets, milk depots, bakeries, etc., are visited at intervals, and a report is made on all the flies which can be counted in a certain number of minutes. The reports are all tabulated on a large map at headquarters, so that a comparison is always possible between different districts. The conduct of the work and the discipline of the junior force are as far as possible left in the hands of the boys themselves. This movement is an interesting illustration of the growing tendency on the part of health officers to utilize the public and to work along recognized psychologic lines. Probably every boy of from 12 to 16 desires above all things to be a policeman and to wear a badge. If he cannot fight crooks, the next best thing is fighting flies. If the enthusiasm engendered by several generations of "Old Cap. Collier" dime novels can be utilized in fighting flies or, better still, in fighting the filthy conditions under which flies breed, the public health propaganda will have gained a valuable ally.

A COUNTRY EDITOR ON SCHOOL INSPECTION

Manatee, Florida, is a town of less than 1,000 inhabitants, but evidently it has the spirit and progressiveness of some much larger communities. Discussing medical school inspection, the local newspaper, the Manatee *Record*, recently said editorially: "Medical inspection is a business proposition. In a town with 125 children, it is claimed there will be an annual saving of $2,265 if by thorough medical inspection the curable physical defects that handicap school-children could be remedied." The editor of the *Record* has grasped the essential feature and the advantages of medical school inspection. He sees no reason why modern scientific knowledge should not be utilized in administering the public schools in the most economical and efficient manner possible. Why spend the money in a well-nigh hopeless endeavor to teach children with defective eyes and ears, when at a slight expense each child could be put in the best possible condition to receive and profit by instruction? The question is a simple one. Do the taxpayers of a community wish to put their children in good physical condition, in the same way in which they would improve their school grounds, building and equipment, or do they prefer to spend their money on school equipment and leave the child defective and unable to profit by the instruction offered? The editor of the Manatee *Record* is apparently not alarmed by any specious cries of invasion of "personal liberty." In fact, it is difficult to see how the personal liberty of any one is invaded when a child's defective eyes are put into condition whereby he can see the blackboard or read his textbook without discomfort. Children's diseases also are rightly regarded by the editor of the *Record* as wasteful and unnecessary. "More and more the people of the country are realizing that it is not necessary for children to go through a course of measles, whooping cough, mumps and scarlatina. . . . Medical inspection and prompt and firm handling of parents as well as pupils will enable the majority of youngsters to enter and leave the grammar schools without having had to be a nuisance to themselves and their parents and teachers by various spells of preventable diseases." An exchange whereby different educational institutions trade professors temporarily has become a fixed institution in the educational world. What a valuable thing it would be if some of our larger cities could arrange to trade editors with Manatee for a few years. This would be a misfortune for Manatee, but it might be a godsend for some other communities.

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[2] Kite, G. L., and Wherry, W. B.: The Mechanism of Phagocytosis, Jour. Infect. Dis., 1915, xvi, 109.

THE MILK SUPPLY AND FOOT AND MOUTH DISEASE

It was to be expected that the extensive and serious outbreak of foot and mouth disease, again discovered in this country last October and now apparently well under control, should raise questions respecting its bearing on human health. Although only secondarily and casually a malady of man, the foot and mouth disease seems to reach him in occasional cases in connection with every epizootic. Some authorities believe that its incidence in man is much greater than the statistics indicate, as the milder cases are not seen by physicians. Reports concerning the appearance of the characteristic vesicular eruptions in the mouths of children were received during the 1914 outbreak. Although infection can doubtless occur by the contact of saliva or contents of the vesicles of infected cattle with abrasions of the skin, the commonly assigned mode of transmission to man is through unboiled milk, butter, cheese or other similar dairy products. In the recent outbreak the history of the cases is said to incriminate the milk supply. There is abundant evidence that the infectious agent can be destroyed with comparative ease by heat or the usual germicides. Physicians and health officials will be interested to learn, on the authority of a government publication,[1] that milk pasteurized at a temperature of 60 C. (140 F.) for twenty minutes is safe so far as infection by foot and mouth disease is concerned.

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[1] Mohler, J. R.: Foot and Mouth Disease, Farmers' Bull. 666, U. S. Dept. Agric., April 22, 1915.

Fatal Poisoning from External Application of Resorcin.—C. Boeck of Christiania makes extensive use of mucilaginous mixtures containing resorcin in the treatment of lupus. He had never had any mishaps with it, even in a strength of 33 per cent. and more, until recently when he applied a 25 per cent. resorcin mixture to the greater part of the calf of a boy of 16. The lad had had lupus since the age of 3 and it had extended until the entire left leg and most of the left arm were involved. Half an hour after the application to the leg, made where the epithelium was intact throughout, the lad became restless and screamed with pain but soon quieted down. An hour and a half after the paste had been applied, he was found unconscious and cyanotic. Convulsions followed and the boy died nine hours after the application, without regaining consciousness. The formula for the paste was 15 parts resorcin; 15 parts talcum, and 30 parts gelatin base. Boeck has found three cases on record of similar toxic action from resorcin, but the two adults recovered. An infant, 11 days old, who had been treated with a 3 per cent. resorcinated petrolatum for pemphigus, died with symptoms of acute poisoning. The syndrome in all was the same as in Boeck's case. His report appears in the *Dermatologische Wochenschrift,* 1915, lx, 449.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

State Board Election.—At the annual meeting of the State Board of Health, held in Little Rock, May 7, Dr. Andrew L. Buckner, Dermott, was elected president and Dr. Charles W. Garrison, Little Rock, secretary.

Personal.—Dr. William S. Stewart, Pine Bluff, secretary of the State Board of Medical Examiners, is reported to be critically ill with disease of the kidney at St. Joseph's Infirmary, Hot Springs.——Dr. John C. Davis, Harrisburg, has succeeded Dr. George B. Fletcher, Little Rock, as a member of the staff of the State Hospital for Nervous Diseases, Little Rock.

State Board Changes.—The governor has appointed Drs. Wells F. Smith, Little Rock; and Julius A. Bogart, Forrest City, members of the State Board of Medical Examiners, and has reappointed Dr. F. T. Isbell, Horatio, to the board. The governor has appointed Dr. St. Cloud Cooper, Fort Smith, a member of the State Board of Nurse Examiners. ——J. B. Pond, Little Rock, has retired after twenty years of active service as president of the State Board of Pharmacists.

State Society Meeting.—The thirty-ninth annual meeting of the Arkansas Medical Society was held in Little Rock May 4 to 6, under the presidency of Dr. St. Cloud Cooper, Fort Smith. Dr. James C. Walles, Arkadelphia, was elected president; Dr. Clinton P. Meriwether, Little Rock, was reelected secretary, and Dr. William R. Bathurst, Little Rock, was reelected treasurer and editor of the *Journal of the Arkansas Medical Society.* Texarkana was selected as the place of meeting for 1916.

CALIFORNIA

Health Statistician Resigns.—Lewis Lee Loyle, deputy statistician of the State Board of Health, has resigned to take effect August 1.

Personal.—Dr. Stella M. Clarke, Los Angeles, has recovered after a long illness, and is on duty as house surgeon in the Hospital of the Good Samaritan, Los Angeles.——Dr. Shadworth O. Beasley, San Francisco, has been appointed assistant surgeon to the American Red Cross and has been assigned to duty in Belgrade, Serbia. He sailed from New York, May 1.——Dr. Ferdinand Stabel, Redding, who was attacked by a rabid dog, April 29, and started taking the Pasteur treatment in San Francisco two weeks later, is reported to be suffering from paralysis.——Dr. Jacob H. Parsegan, San Francisco, has returned after a visit of several months to Armenia.

Irregular Practitioners Convicted.—T. J. Pierce, San Francisco, is said to have plead guilty in the United States court to the charge of using the mails to advertise prohibited articles. He had conducted what is known as the Ramond Remedy Company in San Francisco. He was under investigation by the Board of Medical Examiners of the State of California and was convicted by that board, March 18, 1914. May 12, he was sentenced to imprisonment for six months in the county jail.——A jury in the United States court, San Francisco, is said to have brought in a verdict of guilty, May 7, in the case of Dr. Homer C. Edwards and Donald Harris, a student of medicine, on three counts of the joint indictment for fraudulent use of the mails. The jury recommended clemency in the case of Harris.

Appointments in Stanford Medical School.—The following appointments and promotions in the Stanford University Medical School are announced for the year 1915-1916: Dr. Charles Hervey Bailey, New York City, assistant professor of pathology; Dr. Henry Augustus Stephenson, Baltimore, assistant professor of obstetrics and gynecology; Dr. George de Forest Barnett, San Francisco, instructor in medicine; Dr. Jean Redman Oliver, San Francisco, instructor in pathology; Dr. George D. Lyman, San Francisco, clinical instructor in pediatrics; Dr. Shadworth Oldham Beasley, San Francisco, clinical instructor in obstetrics and gynecology; and Dr. Hans Barkan, San Francisco, clinical instructor in surgery, assigned to ophthalmology; Dr. Howard Y. McNaught, San Francisco, clinical instructor in surgery, assigned to otology, rhinology and laryngology.

First-Aid Demonstration at Exposition.—The third annual joint field meet of the United States Bureau of Mines, the American Mine Safety Association and the California Metal Producers' Association will be held at the Panama-Pacific Exposition, September 23 and 24. The joint meet either precedes or follows the annual meetings of a number of institutions allied to the mining interests, such as the American Institute of Mining Engineers, September 17 and 18; the International Engineering Congress, September 20 to 25; the American Mining Congress, September 20 to 22; the California State Mine Rescue and First Aid Contest, September 22, and the National Safety Conference, under the joint auspices of the National Safety Council and the California Industrial Accidents Commission, September 27 to 30. On September 23, on the athletic field of the exposition grounds, there will be a mine-rescue demonstration at 10 o'clock; at 2 o'clock in the afternoon there will be a first-aid demonstration, and at 4 o'clock a demonstration of the explosibility of coal dust. On September 24, at 10 o'clock, will be held a first-aid contest for interstate supremacy; at 2 in the afternoon a rescue contest for interstate supremacy; at 4 in the afternoon a rock-drilling contest, and at 8 o'clock in the evening there will be an award of prizes and souvenirs at the Convention Hall. Many well-known mining men and physicians have been assigned to the various committees to have charge of and to judge the field contests.

CONNECTICUT

Personal.—Dr. J. Francis Calef, Middletown, has been elected president of the New England Confederation of Examining Boards.——Frank J. Born, for nine years medical examiner for the Yale University Gymnasium and Athletic Association, has resigned to become dean of the normal school of physical education, Battle Creek, Mich.

State Society Election.—The one hundred and twenty-third annual meeting of the Connecticut State Medical Society was held in Hartford, May 19 and 20, and the following officers were elected: president, Dr. Max Mailhouse, New Haven; vice presidents, Drs. Charles B. Graves, New London, and Cushman A. Sears, New London; secretary, Dr. Marvin M. Scarbrough, New Haven (reelected); and treasurer, Dr. Joseph H. Townsend, New Haven (reelected). On the evening of May 20, the memorial dinner for the late Dr. Oliver C. Smith, Hartford, president of the society, was held at the Hartford Club. Dr. Edward T. Bradstreet, Meriden, made the memorial address.

FLORIDA

Sanatoriums Opened.—The new sanatorium, Jacksonville, was formally opened, May 18.——The new Sunnybrook Sanatorium on Miami Avenue, Miami, was opened for inspection, May 17.

State Association Meeting.—The Florida State Medical Association held its forty-second annual meeting in De Land, May 12 to 14, under the presidency of Dr. F. Clifton Moor, Tallahassee, and the following officers were elected: president, Dr. Robert H. McGinnis, Jacksonville; vice presidents, Drs. William R. Stephens, De Land; Mary Freeman, Perrine, and Joseph H. Coffee, Fort Meade. Arcadia was selected as the next place of meeting.

Health Bills Passed.—The State Board of Health bills, Nos. 135, 136 and 171, which had already been passed by the house, were adopted by the senate, May 7. Of these bills, the first provides for screens on service closets, fruit and vegetables exposed for sale, meats and other eatables. The second requires all school buildings to be provided with adequate facilities by water carriage of service closets, properly screened and fly proofed. The last bill provides for the State Board of Health Exhibit Train and places this exhibit at the disposal of the state for educational purposes.

Personal.—The garage of Dr. Robert L. Bryans, Pensacola, containing two automobiles, was destroyed by fire, May 16. ——A banquet was given by the Hillsboro County Medical Society at Tampa, April 22, in honor of Dr. Louis A. Bize, Tampa, who has retired from the practice of medicine to become president of the Citizens' Bank and Trust Company. Dr. Thomas Truelsen, Jr., acted as toastmaster.——A touring car containing Dr. Otis H. Johnson and his wife and two children, Jacksonville, plunged overboard from a ferry boat, May 9, and Dr. Johnson was the only one of the family saved.

ILLINOIS

Montgomery in Springfield.—Dr. Edward E. Montgomery, Philadelphia, was one of the guests of honor at the meeting of the Illinois State Medical Society and held a clinic in St. John's Hospital, Springfield, May 18.

Personal.—Dr. David S. Ray, mayor of Cuba, started May 19 on a trip to the Canal Zone.——Dr. James L. Reat, Tuscola, was thrown from his buggy, May 13, and painfully injured.——Dr. Jesse P. Simpson, Palmer, was painfully injured when an axle of his automobile broke near Palmer, May 13, overturning the car.

State Pays Claims for Stock.—The senate, on May 7, passed the bill appropriating about $1,000,000 to cover the state's half of the loss of cattle due to the foot and mouth epidemic. The bill was signed by the governor, May 12, and vouchers are now being mailed to each owner of cattle killed on account of the prevalence of the disease.

Hospital News.—The new amusement hall erected on the grounds of the Peoria State Hospital was formally dedicated, May 20. The new building is to be used for the recreation of patients, moving-picture shows, dances, etc.——Dr. Joseph B. Holmes, Macomb, announces that he will enlarge the Annex Hospital, will change its name to the Holmes Hospital and will devote his entire attention to the institution.——Plans are being prepared for the new building for the Maplewood Sanitarium, Jacksonville, to be erected this summer by Dr. Frank P. Norbury and Dr. Albert H. Dollear. The new building will accommodate fifty patients.

State Board Indorses Criticism.—In reply to the criticism made by the Federal authorities of the health laws of the state, the State Board of Health has issued a statement that in practically every detail it agrees with the criticism; that the report supports and corroborates the statement made by the board to the governor and its recommendation to the state efficiency and economy commission in September, 1914. The board agrees that reorganization is necessary; that medical registration functions be divorced from purely public health work and that all state agencies having to do with public health be brought together in one department.

Chicago

Fly Week.—By authorization of the mayor, the week of June 7 to 12 is proclaimed as Fly Week, and during this time every means will be used for the abolition of the fly pest. A special poster calling attention to the crusade has been prepared.

Prevention of Rabies.—The Chicago Medical Society, at its meeting May 26, devoted its entire meeting to a discussion of hydrophobia. The protective measures which the society demands are, that all homeless or ownerless dogs be destroyed; that each dog owner be compelled to register his animal, the penalty being death of the animal; that the city start a registration fee sufficient to pay for veterinary examination before issue of license, and that a year-round muzzling ordinance be passed and enforced.

INDIANA

The New Department of Tuberculosis.—Dr. John N. Hurty, Indianapolis, secretary of the Indiana State Board of Health, announced the appointment of Mr. Walter D. Thurber as deputy state health commissioner in charge of the new department of tuberculosis created by the last legislature. Mr. Thurber is now serving his third year as executive secretary of the Indiana Society for the Study and Prevention of Tuberculosis.

Personal.—Dr. John N. Taylor and wife, Crawfordsville, were seriously injured when their automobile crashed into a telephone pole near Warsaw.——Dr. John N. Hurty, health officer of Indiana, has been elected president of the Indianapolis Literary Club.—Dr. Clint C. Sourwine, Brazil, underwent a third operation for septicemia, May 15.——Dr. Boston H. B. Grayston, Huntington, was operated on for appendicitis at the Huntington Hospital, May 12.——Dr. William T. Ferguson, Fort Wayne, suffered amputation of his left leg below the knee on account of gangrene, May 12. ——Dr. Daniel S. Quickel, Anderson, while chopping wood, was struck in the eye by a piece of wood. The injury is said to be serious.——Dr. Edward P. Busse, Madison, formerly secretary of the Southwestern Indiana Insane Hospital, Madison, has opened a private hospital for the treatment of mental diseases at his old home in Evansville.——Dr. William A. Hollis, Hartford City, who has been ill with colon bacillus infection, is reported to be improving.

LOUISIANA

Freight Inspection Withdrawn.—Surg. Richard H. Creel, U. S. P. H. S., on duty at New Orleans, has ordered the discontinuance of the inspection of outgoing freight cars, which was inaugurated last summer during the active campaign against the bubonic plague.

Personal.—Dr. William T. O'Reilly has been elected president, and Dr. Sara T. Mayo, secretary, of the Sickles Board Fund.——The Italians of New Orleans gave a banquet in honor of Dr. Joseph A. Danna, May 8, in recognition of the work he has done in behalf of the poor of the city. At the banquet Chevalier Carlo di Papini, Italian vice consul, presented Dr. Danna with the decoration of Knight of the Crown of Italy.

Promotion of Mental Hygiene.—The first steps toward the organization of the Louisiana Society for the Promotion of Mental Hygiene were taken May 6, at a public conference in New Orleans, at which Clifford W. Beers explained the organization in other cities. Charles F. Fletchinger was elected temporary president and Dr. Maud Loeber, New Orleans, temporary secretary. The new organization is to be known as the Louisiana Society for Mental Hygiene.

Parish Society Condemns Nostrums.—The Vermilion Parish Medical Society, at its meeting May 20, adopted resolutions setting forth the evil of "patent medicines"; that these nostrums are pernicious and baneful; that benefits accruing from their sale are derived daily from the poor and unfortunate; that the society is in full sympathy with the efforts of the government in its attempts to expose the deception practiced in the manufacture, advertising and sale of the so-called remedies, such as wine of cardui, swamp root, syrup of figs, mothers' friend, vitalitas and the like, and is in hearty sympathy with the activities of the State Board of Health of Louisiana in its attack on these preparations and with its regulations requiring the printing of contents on the label; approving the campaign now in progress and pledging the earnest and active support of the society to their efforts toward the control and eventually the elimination of this evil.

MARYLAND

Psychopathic Building Opening.—The John Hubner Psychopathic Building at the Springfield State Hospital, Sykesville, will be formally opened on June 9. The speakers will be Governor Goldsborough and Drs. E. E. Southard of Boston, Hugh H. Young, Baltimore, president of the State Lunacy Commission, Henry M. Hurd and Edward N. Brush, Towson.

Polyglot Health Rules.—The health commissioner of Baltimore has had a pamphlet printed in English, Bohemian, Italian and Yiddish, of which ten thousand copies are to be distributed. This pamphlet teaches how to destroy flies and mosquitoes and tells tenants how to keep their premises in a clean and sanitary condition. The Poles of Baltimore have asked the commissioner of health to have this pamphlet translated into Polish.

Personal.—Dr. Arthur M. Shipley has been appointed acting dean of the medical school of the University of Maryland to fill the vacancy due to the death of Dr. R. Dorsey Coale.——Dr. Thomas S. Cullen, Baltimore, was operated on by Dr. John M. T. Finney, at Johns Hopkins Hospital, recently, for the removal of gallstones.——Dr. Alfred Whitehead, Baltimore, is under treatment at Johns Hopkins Hospital.——Dr. Richard H. Smith has been elected vice president of the board of directors of the Havre De Grace Hospital.——Assistant Surgeon-General Henry R. Carter, U. S. P. H. S., in charge of the United States Marine Hospital, Baltimore, who was operated on a short time ago, is reported to be convalescent.

Health Association for Colored People Organized.—The committee on public instruction of the Medical and Chirurgical Faculty of Maryland held a conference in Cambridge, May 17 to 19, under the auspices of the Dorchester County Sanitation League, and health officials in the campaign against the fly and mosquito and also to organize a colored county health association.——A colored health association which was recently organized in Annapolis, held its first public meeting, May 27, at which Dr. John S. Fulton, secretary of the State Board of Health; Mason Hawkins, principal of the colored high school of Baltimore, and president of the state colored association, Dr. Henry S. McCard, Baltimore; and Dr. Samuel J. Fort, secretary of the committee on public instruction, were the chief speakers. The subject for the evening was "The Relation of Tuberculosis and Typhoid Fever to the Colored Race."

MASSACHUSETTS

Industrial Accident Board.—The membership of the advisory committee of the Massachusetts Industrial Accident Board is as follows: Drs. Frederic J. Cotton, Boston; Francis W. Anthony, Haverhill; Samuel E. Fletcher, Chicopee; Samuel H. Calderwood, Roxbury; Francis D. Donoghue, Boston; Frank E. Allard, Boston; William H. Ruddick, Boston, and Walter P. Bowers, Clinton. Dr. Francis D. Donoghue has been selected by the board as its medical adviser.

Hospital Notes.—The establishment of a dispensary for tuberculosis has been delegated by the department of public health and charities at Lawrence, to the Antituberculosis League, Lawrence, and the dispensary will be open daily from 2 to 5, excepting on Wednesdays, when the hours are from 9 to 11 a. m., and also Thursday evenings, from 6:30 to 7:30. Dr. D. B. Sargent is medical adviser of the institution.——A series of receptions were held at the Lawrence General Hospital on May 18 to 20, when the entire plant, including the new children's ward and nurses' home, was opened for inspection.

State Society Meeting.—The one hundred and thirty-fourth annual meeting of the Massachusetts Medical Society will be held in Boston, June 8 and 9, under the presidency of Dr. Charles F. Withington, Boston. The annual dinner will be held at the Copley Plaza Hotel. On the first morning clinics and demonstrations will be held at the various hospitals. In the afternoon various sections will meet and in the evening the Shattuck lecture will be delivered by Dr. Joel E. Goldthwait, Boston, followed by the president's reception. On the second morning the informal exercises will take place. At noon the annual discourse will be delivered by Dr. Everett A. Bates, Springfield, whose topic will be "Some Perplexities in Modern Medicine," and in the afternoon there will be a joint meeting of sections with a symposium on Empyema. The annual dinner will be served on Wednesday evening at 7 o'clock.

MISSOURI

Missouri Declares Quarantine.—A provisional quarantine against all live stock from the states of Arizona, California, Nevada, Oregon, Utah and Washington was declared by the Missouri State Board of Agriculture, May 21.

Expedition to Honduras.—The St. Louis University will send an expedition to British Honduras this summer for the study of biology and preventive medicine with the object of establishing a permanent station for work in these specialties.

Dinner to Dr. Loeb.—A testimonial dinner was tendered to Dr. Leo Loeb at the University Club, St. Louis, May 25, by members of the medical profession of St. Louis, the scientific faculties of Washington University and St. Louis University and members of the Biological Society of St. Louis. Among the speakers were Profs. Robert J. Terry of Washington University, Ralph L. Thompson of St. Louis University, Augustus G. Pohlman and Walter E. Garrey; Dr. George Gellhorn and Messrs. Edwin Mallinckrodt, Jr., and Regis Chauvenet.

New Hospitals.—Dr. Halsey M. Lyle announces the opening of a hospital in Kansas City for the treatment of skin diseases and cancer.——Dr. Walter E. Cary has opened a hospital in Kansas City for the treatment of nervous and mental diseases.——The new Muncipal Tuberculosis Hospital, Kansas City, at the Leeds Farm, is approaching completion and will be ready to receive patients in about sixty days. The building has cost $150,000 and will accommodate about 150 patients.——An eye, ear, nose and throat clinic has been established by Father Dempsey at his day nursery, 1209 N. Sixth Street, St. Louis. The clinic is open on Saturdays and Mondays from 3 to 5 p. m.

Personal.—Dr. Carlos C. English, resident physician at the State Sanatorium for Tuberculosis, Mount Vernon, has been appointed superintendent succeeding Dr. Bondurant Hughes, resigned.——Dr. James Stewart, superintendent of hygiene of the public schools of St. Louis, has recovered after a surgical operation.——Dr. Horace T. Price has been appointed medical examiner of the Efficiency Board of St. Louis.——Dr. Hasbrouck De Lamater, until recently assistant health commissioner of Kansas City, has entered private practice.——Dr. Max C. Starkloff has been reappointed health commissioner of St. Louis.——Dr. Moyer S. Fleisher, who has been assistant in the department of pathology of the St. Louis Barnard Free Skin and Cancer Hospital, has been appointed assistant professor of bacteriology in the St. Louis University School of Medicine.

NEW YORK

Tribute to Anatomist.—The 1915 *Skull*, the annual of the student body of Albany Medical College, is dedicated to Dr. Joseph Davis Craig, for thirty years professor of anatomy in the college.

Addition to Hospital.—The State of New York has recently commenced the erection of a $10,000 addition to the present General Hospital erected at a cost of $15,000 at the State Agricultural and Industrial School, Industry. This addition is required to enable the school physician properly to care for the health and correction of physical defects in the 700 or more inmates of the institution.

Health Department and Occupational Diseases.—The Health Department has organized an Occupational Clinic at 49 Lafayette Street and in connection with the work of the clinic has prepared a clinical history card, which is of interest and may help to indicate lines along which investigation may yield clinical results. It is the belief of those interested in this subject that if some of the data included on this card were asked in the course of clinical examinations conducted in dispensaries, hospitals and in private practice, a number of obscure diseases whose causes lie in the occupation of the individual, would be brought to light. A factory survey card which a medical inspector fills out prior to the examination of a given group of working people in any particular factory is also used in connection with the data of the clinical history card of the Occupational Clinic, and together they give a comprehensive picture to the examiners at the Occupational Clinic of the various factors which operate to produce occupational diseases or to lower health.

New York City

Physician Leaves Large Estate.—The late Dr. Everett Herrick, who died April 1, 1914, left an estate of $1,335,458.

Sails to Head Field Hospital.—Dr. Berkeley Sherwood-Dunn, physician and banker, sailed May 15 for France, where he will take command of a field hospital.

Beriberi Near New York.—A wireless message received May 26 by Health Officer O'Connell, states that the British steamer *Dewa* from Cienfuegos, Cuba, for New York, has twenty-five cases of beriberi among its crew of forty men, and that eight men have died from the disease since the vessel sailed.

The Arbuckle Memorial.—The north wing of the Long Island College Hospital, presented to the hospital in memory of John Arbuckle by his two sisters, was opened on May 24. It will house 171 male patients, and contains, besides the wards and private rooms, a clinical laboratory for 45 medical students and three research laboratories for the use of clinical research workers.

Dinner to Dr. Fuhs.—A farewell dinner was given to Dr. Jacob Fuhs by the visiting and assistant visiting staffs and the Alumni Association of St. Catherine's Hospital, Brooklyn. The occasion of the dinner was the resignation of Dr. Fuhs, after forty years of service as visiting physician to the hospital. Dr. Mathias Figueira presided as chairman. A set of resolutions laudatory of Dr. Fuhs was adopted and a copy bound in seal leather was presented to him.

Port Health Officer Opposes Federal Jurisdiction.—Dr. Joseph J. O'Connell, health officer of the port of New York, opposes the suggestion that his department be placed under federal control for the sake of economy. Dr. O'Connell claims that this change will impose a greater financial burden on the state than that entailed under the present plan of state control. At present the state pays 20 per cent. of the maintenance cost of this department. Under federal control, he claims, this amount would be increased to 27, or even 30 per cent.

New Diphtheria Hospital.—Bids for the construction of a new diphtheria hospital, Brooklyn, were advertised, May 22. The new hospital will be under the direction of the department of health and will be one of a group of buildings on Kingston Avenue, devoted to the treatment of communicable diseases. The building will be three stories in height, the central portion, 50 by 44, with a wing on either side, 58 by 28. The building will be fireproof throughout and will accommodate eighty patients under normal conditions. It will cost about $100,000.

Opportunity to Study Occupational Diseases.—The health department announces that it desires to secure the assistance of competent clinical workers for its occupational clinic. In the budget a request will be made for a number of positions for clinic physicians at $300 per annum. The hours of work will be two and one-half hours three times a week. This will offer an unusual opportunity to do research work in the study of occupational diseases which, it is predicted, will in a short time assume a most important rôle in preventive medicine.

Survey of Disease Clinics.—The social hygiene division of the Charities and Correction Conference, at a meeting, May 17, presented the following report: Of twenty-seven venereal disease clinics in New York City, only seven have complied with the recommendations of the Associated Out-Patients' Clinics. The insanitary condition of the clinics must be improved and common standards for discharging patients must be followed. The remedies proposed include wider publicity of recommendations and better cooperation between dispensary authorities and clinic chiefs. Knowledge of conditions existing and the results accomplished is essential to the intelligent direction of a clinic. In the four venereal disease clinics studied this information had never been recorded. It was obtainable, though with great difficulty, in only two. Three-fourths of the patients "ceased treatment unimproved." One-half of the patients made too few visits to hope to be cured. Much of the time and money expended on these was wasted. The remedies proposed are: (1) Determine how much time and money is wasted; (2) get the patients to come back.

NORTH CAROLINA

State Society Meeting.—The Medical Society of the State of North Carolina will hold its annual meeting in Greensboro, June 14 to 17. In connection with this meeting will be held the annual meeting of the State Health Officers' Association.

Antityphoid Campaign.—Wake, Northampton and Edgecomb counties have decided to hold antityphoid immunization campaigns during the summer and have made appropriations for this work. In these campaigns the counties will provide for the local expenses of the dispensaries and the State Board of Health will furnish the antityphoid vaccine and literature, and will direct and assist at various dispensaries.

Convict Camps.—Dr. Watson S. Rankin, Raleigh, secretary of the State Board of Health, has made a report on the condition of the convict camps in Nash County. As the result of his investigation, he recommends that the State Board of Health be directed to make an inspection of the convict camps of ten counties in North Carolina, with the object of improving the sanitary condition in these camps.

Full Appropriation for Hospital.—After a conference between the governor, council of the state, legislative finance committee and directors of the Webster Hospital for the Insane, Morgantown, it was decided that the hospital is to have the full appropriation of $200,000 for maintenance, without regard to the apparently mythical accumulated balance of $76,000 which the legislative finance committee declared the institution to have.

Hospital News.—At a meeting of the Negro Medical and Pharmaceutical Association of Guilford County, held at High Point, May 10, a resolution was adopted that the association establish a hospital for the care of colored people of Guilford County, to be located at Greensboro.——The Charlotte Sanatorium Company has been incorporated by Dr. Robert L. Gibbon, Charlotte, and others, with a capital stock of $125,000, to run and operate the Charlotte Sanatorium.

Decision of Supreme Court on Practicing Without License by Nondrug-Giving Physician.—An individual calling himself Dr. Siler was engaged in Greensboro, N. C., in the practice of "chiropractic and suggestotherapy." He was indicted for practicing without license, and on a special verdict the trial judge found him not guilty, and the ruling of the lower court was appealed to the supreme court for final action. Chief Justice Clark, in the decision, held that the act of 1913 amending the act of 1907 requires that all nondrug-giving physicians shall be licensed by the nondrug board before engaging in the practice of their profession. In the case in question it appeared that "Dr. Siler" was not, according to his contention, practicing osteopathy, but was engaged in the "practice of chiropractic and suggestotherapy" and received compensation therefor. Chiropractic, it was submitted to the court, "is a system of treating human diseases without the use of drugs by mental suggestion," and it was admitted that the defendant had not been licensed by the osteopathic board. The defense contended that the act of 1907, as amended by that of 1913, does not require nondrug-giving practitioners, other than osteopaths, to pass examinations or take out license, and that if it did, such requirement would be unconstitutional. The court opinion, after reviewing the law applicable, says the act of 1913 simply extends the act of 1907 to require "the examination and licensing of all other nondrug-giving practitioners, by whatever name known," and makes those violating this statute "guilty of a misdemeanor to the same extent as those who practiced as osteopaths without complying with the requirements of the act of 1907." The chief justice ruled that the law of 1907, as amended in 1913, was for the protection of the public by requiring all nondrug-giving physicians to be regularly licensed, and that on the special verdict the court should have found the defendant guilty. This decision sets at rest a question that has been considered at different times in the state, at least by implication, and definitely adjudges the province of the State Board of Medical Examiners to be to examine and license physicians who give drugs, while it positively rules that all nondrug-giving physicians, of whatsoever name, shall be examined and licensed by the State Board of Examiners of Osteopathy.

PENNSYLVANIA

Personal.—Dr. Calvin L. Johnstonbaugh, Bethlehem, has been reappointed a member of the Board of Medical Education and Licensure.——Dr. Daniel R. McCormick, Lancaster, suffered a cerebral hemorrhage, May 21.——Dr. P. Joseph Faughnan, Locust Gap, was operated on at the Shamokin Hospital, recently, for strangulated hernia.——Dr. James Burns Amberson, Waynesboro, was given a silver loving-cup by the members of the Waynesboro Academy of Medicine, May 15, in honor of his seventieth birthday.——Dr. William F. Muhlenberg of Reading has been chosen president by the executive committee of the Pennsylvania German Society.——Dr. Edwin S. Dorworth, Bellefonte, who recently completed fifty years of practice of medicine in Center County, and also celebrated his eighty-first birthday anniversary, was accorded an informal reception and dinner by the Center County Medical Society.

Philadelphia

Club Reception.—The Medical Club of Philadelphia will give a reception in honor of Rear Admiral William S. Benson, U. S. Navy, at the Bellevue Stratford, June 11.

Graduating Exercises.—The sixty-third annual commencement exercises of the Woman's Medical College of Pennsylvania were held in the Garrick Theater, June 2, at 11 o'clock. The address was delivered by Dr. Richard C. Cabot, Boston. In the evening, a reception was given by the corporators and faculty in honor of the graduating class.——The sixty-third annual commencement of Jefferson Medical College will be held at the Academy of Music, June 5, and Dr. Victor C. Vaughan of the University of Michigan medical faculty will deliver the valedictory, "A Doctor's Ideals."

In Spite of Difficulties.—James Keith of Shafferstown, Pa., a student at Jefferson Medical College, who was taken to the Jefferson Hospital in April, 1914, with his back broken as a result of a fall from the window of a fraternity house, and who has since had one leg amputated, has successfully passed his final senior examinations, and will receive the medical diploma.

Appeal for Free Bed.—The Alumni Association of Jefferson Medical College makes another appeal for contributions to the endowment fund for the establishment of a free bed in Jefferson Hospital for the care of poor graduates. At the present time about $1,700 has been contributed. The past year's experience has taught that many men are in need and a room of this kind is a necessity.

Personal.—Dr. R. Tait McKenzie, director of the department of physical education at the University of Pennsylvania, sailed, May 29, for London, where he is to aid in "hardening up" British recruits. He will take charge of the new physical department established by the British government, will be posted outside of London with a staff of experts, and will look after the physical conditions of the men who are preparing to go to the front. It is reported that Dr. McKenzie has been granted a year's leave of absence from the university.——Howard B. Lewis, Ph.D., instructor in physiologic chemistry of the University of Pennsylvania, has been appointed to an associate professorship by the trustees of the University of Illinois.——Dr. Barton K. Thomas was operated on for tumor of the abdominal wall at Jefferson Hospital, May 17, and is reported to be doing well.——Dr. Joseph Pasceri has been called to the colors by the Italian consul.

Against Insanitary Barbers.—A campaign of education of the public against insanitary barbers has been started in Philadelphia. Bulletins on the subject were sent out, May 24, by the Department of Public Health. The public is warned not to employ barbers suffering from infectious diseases, and is told that boils, erysipelas, ringworm, barber's itch, conjunctivitis and virulent ophthalmia may be transmitted by uncleanliness. For the barber's observance, the department urges rules which call for the sterilization of hairbrushes and combs by formaldehyd, and the sterilization of razors, shears, clippers and tweezers by immersion in boiling water or wiping with cotton moistened in acetone-alcohol or hydrogen peroxid. Individual towels should be used instead of powder puffs, sponges and finger bowls. The common cosmetic stick should be avoided. Bleeding should be stopped by applying cotton which has been dipped into a solution of epinephrin chlorid to the wound.

SOUTH DAKOTA

State Society Meeting.—The thirty-fourth annual meeting of the South Dakota State Medical Association was held in Sioux Falls, May 18 to 20, under the presidency of Dr. Fred Treon, Chamberlain, whose presidential address was on "Some Practical Considerations in the Diagnosis of Abdominal Conditions." The following officers were elected: president, Dr. James B. Vaughn, Castlewood; vice-presidents, Drs. Francis M. Crain, Redfield, and Herman J. G. Koobs, Scotland, the secretary holding over until the next meeting. Dr. Leslie G. Hill, Watertown, was selected as delegate to the American Medical Association. Aberdeen was selected as the place of meeting for 1916.

WEST VIRGINIA

Health Survey Desired.—The Clarksburg Board of Trade has requested the Surgeon-General of the United States Public Health Service to make a field survey on health and sanitation in Harrison County.

Personal.—The residence of Dr. Willis St. Michael, Hendricks, was destroyed by fire to the extent of $1,500, May 14.——Dr. Sylvanus L. S. Spragg, Wheeling, who has been ill with pneumonia, is reported to be convalescent.——Dr. Will S. Keever, Parkersburg, was injured in a railway accident in Baltimore, recently.

Higher Standard Adopted.—The new announcement of the West Virginia University, just received, states that on and after Sept. 1, 1917, two years of collegiate work (sixty-four credit hours), including courses in physics, chemistry, biology and French or German, will be required for admission to the medical school.

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Only Trained Nurses Accepted for German Base Hospitals.—According to a recent regulation of the war department in Germany, only trained nurses are to be accepted for the examinations or take out license, and that if it did, such requirement would be unconstitutional. The court opinion, after reviewing the law applicable, says the act of 1913 simply extends the act of 1907 to require "the examination and licensing of all other nondrug-giving practitioners, by whatever name known," and makes those violating this statute "guilty of a misdemeanor to the same extent as those who practiced as osteopaths without complying with the requirements of the act of 1907." The chief justice ruled that the law of 1907, as amended in 1913, was for the protection of the public by requiring all nondrug-giving physicians to be regularly licensed, and that on the special verdict the court should have found the defendant guilty. This decision sets at rest a question that has been considered at different times in the state, at least by implication, and definitely adjudges the province of the State Board of Medical Examiners to be to examine and license physicians who give drugs, while it positively rules that all nondrug-giving physicians, of whatsoever name, shall be examined and licensed by the State Board of Examiners of Osteopathy.

PENNSYLVANIA

Personal.—Dr. Calvin L. Johnstonbaugh, Bethlehem, has been reappointed a member of the Board of Medical Education and Licensure.——Dr. Daniel R. McCormick, Lancaster, suffered a cerebral hemorrhage, May 21.——Dr. P. Joseph Faughnan, Locust Gap, was operated on at the Shamokin Hospital, recently, for strangulated hernia.——Dr. James Burns Amberson, Waynesboro, was given a silver loving-cup by the members of the Waynesboro Academy of Medicine, May 15, in honor of his seventieth birthday.——Dr. William F. Muhlenberg of Reading has been chosen president by the executive committee of the Pennsylvania German Society.——Dr. Edwin S. Dorworth, Bellefonte, who recently completed fifty years of practice of medicine in Center County, and also celebrated his eighty-first birthday anniversary, was accorded an informal reception and dinner by the Center County Medical Society.

Philadelphia

Club Reception.—The Medical Club of Philadelphia will give a reception in honor of Rear Admiral William S. Benson, U. S. Navy, at the Bellevue Stratford, June 11.

Graduating Exercises.—The sixty-third annual commencement exercises of the Woman's Medical College of Pennsylvania were held in the Garrick Theater, June 2, at 11 o'clock. The address was delivered by Dr. Richard C. Cabot, Boston. In the evening, a reception was given by the corporators and faculty in honor of the graduating class.——The sixty-third annual commencement of Jefferson Medical College will be held at the Academy of Music, June 5, and Dr. Victor C. Vaughan of the University of Michigan medical faculty will deliver the valedictory, "A Doctor's Ideals."

In Spite of Difficulties.—James Keith of Shafferstown, Pa., a student at Jefferson Medical College, who was taken to the Jefferson Hospital in April, 1914, with his back broken as a result of a fall from the window of a fraternity house, and who has since had one leg amputated, has successfully passed his final senior examinations, and will receive the medical diploma.

Appeal for Free Bed.—The Alumni Association of Jefferson Medical College makes another appeal for contributions to the endowment fund for the establishment of a free bed in Jefferson Hospital for the care of poor graduates. At the present time about $1,700 has been contributed. The past year's experience has taught that many men are in need and a room of this kind is a necessity.

Personal.—Dr. R. Tait McKenzie, director of the department of physical education at the University of Pennsylvania, sailed, May 29, for London, where he is to aid in "hardening up" British recruits. He will take charge of the new physical department established by the British government, will be posted outside of London with a staff of experts, and will look after the physical conditions of the men who are preparing to go to the front. It is reported that Dr. McKenzie has been granted a year's leave of absence from the university.——Howard B. Lewis, Ph.D., instructor in physiologic chemistry of the University of Pennsylvania, has been appointed to an associate professorship by the trustees of the University of Illinois.——Dr. Barton K. Thomas was operated on for tumor of the abdominal wall at Jefferson Hospital, May 17, and is reported to be doing well.——Dr. Joseph Pasceri has been called to the colors by the Italian consul.

Against Insanitary Barbers.—A campaign of education of the public against insanitary barbers has been started in Philadelphia. Bulletins on the subject were sent out, May 24, by the Department of Public Health. The public is warned not to employ barbers suffering from infectious diseases, and is told that boils, erysipelas, ringworm, barber's itch, conjunctivitis and virulent ophthalmia may be transmitted by uncleanliness. For the barber's observance, the department urges rules which call for the sterilization of hairbrushes and combs by formaldehyd, and the sterilization of razors, shears, clippers and tweezers by immersion in boiling water or wiping with cotton moistened in acetone-alcohol or hydrogen peroxid. Individual towels should be used instead of powder puffs, sponges and finger bowls. The common cosmetic stick should be avoided. Bleeding should be stopped by applying cotton which has been dipped into a solution of epinephrin chlorid to the wound.

SOUTH DAKOTA

State Society Meeting.—The thirty-fourth annual meeting of the South Dakota State Medical Association was held in Sioux Falls, May 18 to 20, under the presidency of Dr. Fred Treon, Chamberlain, whose presidential address was on "Some Practical Considerations in the Diagnosis of Abdominal Conditions." The following officers were elected: president, Dr. James B. Vaughn, Castlewood; vice-presidents, Drs. Francis M. Crain, Redfield, and Herman J. G. Koobs, Scotland, the secretary holding over until the next meeting. Dr. Leslie G. Hill, Watertown, was selected as delegate to the American Medical Association. Aberdeen was selected as the place of meeting for 1916.

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Health Survey Desired.—The Clarksburg Board of Trade has requested the Surgeon-General of the United States Public Health Service to make a field survey on health and sanitation in Harrison County.

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Russian Women Medical Students Called on for Professional Services in the Field Hospitals.—A German exchange mentions that in Russia the minister for public instruction has notified the medical colleges which have women in their classes that women students who have studied for six semesters or more are liable to be called on for service in the hospitals at the front.

Woman Appointed Army Surgeon.—The wife of the orthopedic surgeon, Professor Helbing of Berlin, is a registered physician and specializes also in orthopedic surgery. She has been for several months at work among the wounded soldiers, and recently she has been given an official position. As our German exchanges remark, Frau Grete Schüler-Helbing is thus the first German *Militärärztin.*

War Notes from The Journal for the Belligerent Countries.—The *Policlinico* of Rome, Italy, publishes a number of "war notes" regarding happenings in the medical world across the border in Austria and Germany, but adds that the information was all derived from THE JOURNAL. It also prints news about its neighbors to the east in Greece and numbers of items of news from France, all taken from THE JOURNAL.

Red Cross Work in Turkey.—The Constantinople Chapter of the American Red Cross has taken charge of the British and French hospitals in that city. In these two hospitals 150 soldiers can be accommodated. The Red Cross has also arranged to take over the American Mission hospitals at Konia, Cesarea, Marsovan, Erzeroum, Sivas, Harpoot, Aintab, Latakia, Adana, Mersin, Mardin, Diarbekir and Van for similar purposes. These will provide accommodations for 1,000 sick and wounded soldiers in fifteen well-manned and equipped hospitals without cost to the government.

District Maternities.—The public hospitals in Berlin are making special provisions for the large number of obstetric cases expected shortly. Bumm suggests the establishing of small maternities, of ten to twenty beds, in the different districts of the city, so that they can be reached easily by the women. The public should be widely informed of the nearest maternities, and some beds should be kept free for each night. The authorities were spurred to action recently when a woman in labor was turned away by the leading public maternity. The socialist newspaper wrote up the case roundly denouncing the Universitäts-Frauenklinik, the institution in question.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending May 29, 1915, lists the following contributions:

Dr. J. E. Talley, Philadelphia, Pa.		$ 10.00
Dr. Leonard W. Ely, Palo Alto, Calif.		5.00
Receipts for the week ending May 29		$ 15.00
Previously reported receipts		6,993.50
Total receipts		$7,008.50
Previously reported disbursements:		
1,625 standard boxes of food at $2.20	$3,575.00	
1,274 standard boxes of food at 2.30	2,930.00	
213 standard boxes of food at 2.28	485.64	
Total disbursements		6,990.84
Balance		$ 17.66

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Hygiene and Prophylaxis in the Field.—During the last few weeks, courses of lectures have been delivered at various points in Italy to instruct soldiers in prophylaxis of disease and hygiene at the front in general. For several months series of lectures to prepare medical men for work at the front have been held in some of the large cities. Conferences have also been held under the auspices of local medical societies, as at Ferrara, where special efforts were made to bring up to date the knowledge of the physicians in respect to typhus, epidemic meningitis, tetanus, bayonet wounds, traumatic neuroses, etc. Everywhere physicians have flocked to these conferences. The nonmedical ones were arranged by an organization formed for this purpose, the Associazione nazionale per l'istruzione del soldato e del popolo, and the Comitato nazionale feminile per l'intervento italiano. The date for the final examinations for the medical schools was advanced to bring them mostly into May.

Campaign in France Against Alcohol.—The prefects of police of five departments of Normandie, in northern France, recently summoned a conference to discuss ways and means to restrict the use of liquor, and voted a number of what they state are merely palliative measures until legislative restrictions can be imposed. For the latter they urge that the sale of spirits be suppressed entirely during the course of the war, and that the number of saloons should be restricted and no liquor be sold to soldiers, women or minors under 18, and that debts for purchasing liquor should rank with gambling debts. The prefect of the Eure department summarily prohibited the sale of alcohol throughout his department during the war, his decree being signed August 26. He specifies as "alcohol," rum, cognac, calvados, kirsch and brandy. The general in charge of the Rouen department issued a similar decree in May, only he specified that wine, cider and beer were not included in the prohibition, and that the sale of liquor was forbidden only to soldiers, French, British or Belgian, to women, to minors under 18, and to refugees and others receiving state aid. The decrees are given in full in the *Bulletin de l'Académie de Médecine,* May 4, and hailed as great progress as they emanate from laymen.

BERLIN LETTER

BERLIN, May 3, 1915.

Personal

The Cancer Research Institute connected with the Charité Hospital at Berlin has been in charge of Professor Klemperer until recently. His duties calling him elsewhere, Prof. F. Blumenthal, formerly Leyden's assistant, has been made director of the institute during Klemperer's absence at the front.

The chief of the military medical service in the eastern area of war, Obergeneralarzt von Kern, has been advanced to the rank of a general lieutenant, with the title of Excellency. Hitherto no military medical officer, with the exception of the chief of the entire service, von Schjerning, has ever had the title of Excellenz conferred on him. It is regarded as a further token of the appreciation by the kaiser of the achievements of the medical department, the Sanitätskorps, in the war.

The War

EXCHANGE OF PRISONERS

The exchange of severely wounded soldiers is being continued with France and has been begun with Russia. This is a humanitarian measure which meets the greatest approval of all involved. The hard fate of the permanently invalided can certainly be borne better in their home surroundings than in the enemy's country.

PARTIAL REMOVAL OF RESTRICTIONS TO BREAD

New decrees have been issued by the department of the interior, based on the advice of prominent experts summoned for the purpose from medical circles. Continued investigation as to the supply of wheat on hand led to the gratifying discovery that there is a larger supply available than had been supposed. Consequently larger proportions of wheat flour can now be used in making bread, so that conditions approximate normal once more. The supply of oatmeal is so extensive that it can be obtained without a "bread ticket."

FOUR HOSPITAL TRAINS

The number of hospital trains is constantly being added to, and has already reached almost 200.

HEADQUARTERS OF SUPPLIES FOR THE MILITARY MEDICAL DEPARTMENT

The central headquarters for the supplies for the entire sanitary service of the army and navy are installed in the Kaiser Wilhelm Military-Medical Academy at Berlin. The new goods as received are stored in the broad entrance hall. After they have been carefully inspected and approved, they are then arranged on rows of shelving which are installed through the rooms on the various stories. On these ranges of shelving are arranged all the apparatus, instruments, dressing materials and other things required for the medical and surgical work, everything stored in such a way that it is instantly available. During the winter the trucks were loaded with supplies in a heated shed to avoid injury of articles that might have been damaged by the cold. The shed was also lighted with electricity, as at times some of the work had to be done at night. The new methods of warfare have brought new requirements for the equipment of the medical service. For example, there are now special first-aid packages for aviators, and special litters for trench work. These litters are made so narrow that they can be easily carried through the narrow trenches. They have handles on all sides, and can be strapped on the back, so that a single person can thus carry a wounded soldier on his litter. Knapsacks fitted with surgical supplies are also provided. The drugs used are in tablet form or in sterilized solutions in small fused vials.

RAILROAD EQUIPMENT FOR PROPHYLAXIS OF CONTAGIOUS DISEASES

In Prussia, two hospital trains have been transformed into *Seuchenzüge* to aid in warding off epidemic diseases. Each train consists of a "clean" part, in which there is no fear of contagion, and a "contaminated" part. In one of the trains the first part has thirteen cars, the second, twenty-five. On one platform of twelve of the last cars stands an arrangement for sterilizing the clothing. These platforms are placarded on both sides to warn the brakemen to keep off. The brake handles further are painted red to warn against touching these brakes on the "contaminated" part of the train. None of the brakemen, conductors, engineers or others of the crew are allowed to pass through the "contaminated" part of the train. Any directions or orders they wish to give for the heating, lighting, etc., of the contaminated part of the train must be called from without to the persons in this part of the train. The latter are taught beforehand how to manage the heating and lighting apparatus in their part of the train. If it becomes necessary for others of the crew to enter the contaminated portion, they are required to wear an overgarment and to disinfect themselves under the medical officer's directions before they can pass to the "clean" part.

Car No. 14 is the intermediate link between the clean and the contaminated departments of the train. Here the baths and other special measures considered necessary are enforced before any one is allowed to pass from the rear to the front end of the train. In the "contaminated" part of the train, the platforms are kept wet with a solution of mercuric chlorid, and the brakemen have to scrape their shoes on a cloth wet with the solution and provided for the purpose as they leave the platform. They also have to wash their hands in a similar solution under the physician's orders. In the second train of the kind, the sterilizing boxes are inside the cars, so that the brakemen are free to attend to the brakes at either end of the car.

Women Students During the War

The conditions during the war have not greatly affected the number of women taking university courses. In the winter semester 3,914 women students were registered in German universities, which is an increase of 225 over the previous year. Of this increase, about 100 are in medical courses (944 as compared with 859) and 34 in dentistry (66 as compared with 32). About 25 per cent. of the women are in the Berlin University.

LONDON LETTER

London, May 18, 1915.

The Campaign Against Tuberculosis

A government report shows that up to the end of March, 1914, local authorities had submitted schemes for the treatment of tuberculosis relating to over 95 per cent. of the total population of England. Only five of the fifty county councils and six of the seventy-six county borough councils had not then prepared schemes. March 31 last, 7,898 insured and 14,201 uninsured persons were receiving dispensary treatment, and, in addition, 8,166 insured and 11,445 uninsured persons were under observation by the medical officers of approved dispensaries. On the same date, 4,555 insured and 1,231 uninsured patients (including dependents of the former), were receiving treatment provided in residential institutions by local authorities or at the cost of insurance committees. Up to June 20 last, 259 sanatoriums, hospitals and other residential institutions, containing at least 9,200 beds available for tuberculous cases, had been approved by the board. Approval was also granted to 255 dispensaries in England and seventy-three in Wales, while the appointment of 177 tuberculosis officers was sanctioned. In 1913 the number of cases of pulmonary tuberculosis notified in England and Wales was 96,553, representing 2.64 per thousand of the population, compared with 110,551, or 3.03 per thousand in 1912.

THE ALCOHOL PROBLEM

The drastic proposals of the chancellor of the exchequer for dealing with intemperance among a section of the men engaged in producing munitions of war (described in a previous letter), have been abandoned, as the opposition to them was too great. It was generally felt that to meet a local evil the chancellor was penalizing every one who consumed spirits or wine even in moderation. Moreover, our French allies, who are cut off from the rest of their European market, naturally objected to a measure which would restrict their trade with their one remaining important customer. A suggestion, made some weeks ago in the columns of the *Lancet* has been adopted in principle. This was that the sale of immature spirits, to the consumption of which by working men much of the evil was attributed, should be forbidden. It is now proposed that spirits under 2 years of age shall be compulsory bonded and a surtax levied on all spirits taken out of bond between 2 and 3 years of age. There is to be state control of all saloons in the munition area by a central board composed of representatives of the admiralty, war office and home office.

Libel Action Against the British Medical Association

I have reported in previous letters two actions against the British Medical Association by Stevens, the proprietor of a "cure for consumption," which was exposed in the defendant's publication, "Secret Remedies." In the first action the jury disagreed. In the second they gave a verdict for the association. Stevens has now appealed against this verdict on the ground that it was against the weight of evidence. The appeal has been dismissed.

The Shortage of Physicians

The shortage of physicians in civil practice is increasing in consequence of the demands of the army. The effects are shown in many ways. In the advertisements for resident physicians of hospitals and institutions, which used to be almost confined to males, the words "male or female" are now inserted. In some hospitals American physicians engaged in graduate study have been appointed to the resident posts—an entirely new departure. The remuneration of locum tenens some years ago was about $15 a week. After the passing of the insurance act it rose to from $25 to $35. Since the war it has further increased from $40 to $50, as the demand has far outrun the supply.

PARIS LETTER

Paris, May 13, 1915.

The War

THE WAR AND PUBLISHING

The breaking out of war last July caused great disturbance during the last five months of 1914 in the industries which have to do with the manufacture of books. The statistics published by the *Bibliographie de la France* furnish interesting indications as to the classes of books which have been most affected. As far as the medical sciences are concerned, there is a reduction during 1914 of about 176 publications. This difference between normal times and the present has been reduced to 133 by slight increases during the first seven months of the year in publications on clinical medicine, surgery, practical instruction in medicine, mineral waters and climatic stations. In the last subject the increase is due to more numerous editions of the *Gazette des Eaux*.

CARDIAC WOUND CAUSED BY A FRAGMENT OF A GRENADE WITH EXTRACTION OF THE PROJECTILE

During a recent session of the Académie de médecine, Dr. Beaussenat, surgeon of the national asylums, showed a patient, a young sergeant, who had been operated on for a cardiac wound and whose history seems unique. Oct. 1, 1914, the soldier was wounded by a fragment of a hand grenade which pierced the diaphragm, the pericardium and the entire thickness of the cardiac muscle, lodging in the right ventricle. The fragment was extracted February 17 last (that is to say, four months and a half after its introduction) and the heart was then sutured. Three days of intense dyspnea and imminent syncope were followed by a slight fever on the fourth, fifth and sixth day, and this was accompanied and followed by pulmonary complications which rapidly disappeared. A month after the operation, the wounded man could be regarded as completely recovered. At present, the heart functions normally.

The prolonged tolerance by the heart of a metallic foreign body had already been shown by two cases, reports of which have been published. In one case the wounded man lived for four months and a half; the second patient did not die until the end of the seventh month after the wound. In neither case, however, was an operation performed and the foreign bodies were not discovered until necropsy. The case reported by Beaussenat proves that exploratory cardiotomy is justified under such circumstances and that success may be hoped for.

PREVENTIVE TREATMENT OF PERITONITIS COMPLICATING TYPHOID FEVERS IN WAR

At one of the last sessions of the Société médicale des hôpitaux de Paris, Dr. V. Courtellemont called attention to the fact that in war time typhoid fever peritoneal complications are especially frequent because of the exceptional fatigue to which the patients are subjected and the unsatisfactory diet which they receive during their removal. The prevention of these cases of peritonitis is imperative because they are almost invariably fatal; appropriate preventive treatment, however, has very good chance of success. During this period the peritoneal reaction manifests itself by three signs: abdominal distention, vomiting and abdominal pains. The most frequent of these signs is the abdominal distention. As soon as the preperitonitic condition is recognized, the following treatment should be instituted: (1) immobilization on the back (no baths, lotions or wrappings; no lateral movements; no trunk movements); (2) the permanent application to the abdomen of an icebag wrapped in flannel; (3) complete withholding of liquids from the patient; (4) nourishment by means of subcutaneous injections of serum 1 liter per day (500 c.c. in the morning and the same amount in the evening). This treatment should be continued in most cases for three days.

MEASURES AGAINST CONTAGIOUS DISEASES

In response to a question of Dr. Vaillant, deputy from the department of the Seine, the minister of war has explained that orders have been issued to the armies that all prisoners shall undergo a summary medical examination as soon as possible after their capture. Before being removed to the interior of the country, the men and their clothes are to be cleaned and freed from lice and other parasites. Every prisoner whose condition of health is suspicious is to be isolated and kept under observation in a hospital for contagious diseases. All quarters which are occupied by our troops after abandonment by the enemy are to be cleaned and disinfected, if necessary.

A GIFT FROM HAVANA PHYSICIANS

The minister of war has just received a letter from a group of Havana physicians, former pupils of the Faculté de médecine de Paris, "desirous of showing in a practical manner the affection and gratitude felt for their teachers and numerous colleagues who are giving their services in the hospitals of the Red Cross and on the fields of battle." This letter, which bears the signatures of Drs. Francisco Dominguez, Agustin Varona y Gonzales del Valle, Jose A. Presno, J. B. Landeta, Gabriel Casuso, Diego Tamayo, F. Mendez Capote, Eusebio Hernandez, Pedro Lamotte, Julio Irtiz Cano, Octavio Ortiz Coffigny, M. Sanchez Toledo, Antonio Diaz Albertini and Louis Montane, accompanies a gift of 7,000 pounds of tobacco, 14,000 cigars, 25,000 packages of cigarettes, 7,000 liters of white rum, 50,000 pounds of sugar, 4 sacks of coffee, etc., to be distributed among the hospitals of the Red Cross. Dr. F. Dominguez wrote on behalf of the donors, expressing their good will toward their Paris teachers and comrades.

The Osiris Prize

The Osiris prize, which amounts to 100,000 francs ($20,000), is given every three years for "the most remarkable discovery in sciences, letters, arts, industry and in general any subject which concerns the public welfare." This year the committee of award has had to indicate the disposal not only of the prize for the current year, but also of the arrears of the prize of 1912, which was not given out at that time. After a very long deliberation (over two hours and a half), the committee decided to propose the following disposition of the prizes for the ratification of the general assembly of the five academies composing the Institut de France:

1. The Osiris prize for the year 1915 to be given as a reward for the discovery and application of the antityphoid vaccination, 50,000 francs being shared between Professors Chantemesse and Widal and 50,000 francs being given to Professor Vincent of the Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce.
2. Out of the unawarded prize of 1912, the sum of 60,000 francs ($12,000) to be devoted to the military works of the institute and the remainder to be held in reserve.

It is interesting to recall that the Osiris prize was awarded for the first time, in 1903, to Dr. Roux, director of the Pasteur Institute, for his work on diphtheria.

Marriages

Alfred Ervan Chesley, M.D., to Miss Geneva M. James, both of Lawrence, Mass., at Plaistow, N. H., May 20.

Lawrence Kirby Lunt, M.D., Boston, to Mrs. M. H. Donaldson of Scotland, at Brookline, Mass., May 17.

Charles Wilson Frey, M.D., Dallastown, Pa., to Miss Virginia D. Billet of North York, Pa., May 19.

John L. Foxton, M.D., to Miss Mabel Fuller, both of Huron, S. D., at Laurel, Neb., May 19.

Paul Henry Ringer, M.D., to Miss Eleanor Varick Morrison, both of Asheville, N. C., May 1.

R. M. Shaw, M.D., Alex, Okla., to Mrs. Myrtle Norman of Oklahoma City, recently.

William F. Sirak, M.D., Cleveland, to Miss Lottie Greenberg of Bay City, Mich., May 2.

Robert Hurka, M.D., to Miss Helen Conover, both of Verdon, Neb., May 15.

Deaths

George Wilkeston Guthrie, M.D., one of the best-known and most esteemed practitioners of Pennsylvania; died after a long illness, of bronchopneumonia followed by pleural effusion, at his home in Wilkes-Barre, May 31, aged 70. He was born in Guthrieville, Pa., and was graduated from the University of Pennsylvania, Philadelphia, in 1873. A year later he was elected secretary of the Luzerne County Medical Society and served the organization in this capacity for sixteen years when he was elected president. He was a member of the Medical Society of the State of Pennsylvania, and served as councilor and trustee for a long term, was president of this constituent association about 1900. He was a Fellow of the American Medical Association and from the time of the organization of the House of Delegates in 1902, until 1913, inclusive, he was continuously a member of that body; in 1912 he was made a member of the Judicial Council of the Association. He was also a Fellow of the American Surgical Association; and for many years surgeon to the Wilkes-Barre City Hospital and consulting surgeon to the Pittston Hospital. He was for a long time a member of the Wilkes-Barre Board of Education. Dr. Guthrie, both as a physician and a citizen, was one of the leading men in Pennsylvania. A man of integrity, a man of definite and strong opinion, but one who never lost sight of justice, Dr. Guthrie was a worthy and dependable councilor.

John Threadgill, M.D. University of Alabama, Mobile, 1874; a Confederate veteran; for several years proprietor of a sanatorium at Norman, Okla.; president of the Oklahoma Bank and Trust Company; organizer and president of the Oklahoma National Life Insurance Company; for two terms a member and for one term president of the State Board of Education; president of the Oklahoma City School Board in 1903; for two terms a member of the Oklahoma legislature and a member of the State Pension Board; died at his home in Oklahoma City, May 15, from heart disease, aged 67.

George Gustave Lempe, M.D. Albany (N. Y.) Medical College, 1888; a Fellow of the American Medical Association, and a member of the American Association of Anatomists; president of the Albany County Medical Society in 1910; lecturer on surgery and anatomy in his alma mater; assistant attending surgeon to Albany Hospital and consulting surgeon to the Benedictine Hospital, Kingston, N. Y.; surgeon of the Third Cavalry Squadron, N. G., N. Y., and detailed to duty with B Troop; died at his home in Albany, May 17, from myocarditis, aged 49.

Amos Walker Barber, M.D. University of Pennsylvania, Philadelphia, 1883; of Cheyenne, Wyo.; president of the Wyoming State Medical Society; governor of Wyoming in 1892, during the famous range war which was known as "The Cowmen's Invasion" when his wise counsel is said to have prevented interstate strife; in 1885, on duty at the Military Hospital at Fort Fetterman; said to have been the originator of the treatment of snake-bite by permanganate of potassium; died in Rochester, Minn., May 18, aged 54.

John Steele Mabon, M.D. University of Pennsylvania, Philadelphia, 1880; a Fellow of the American Medical Association and American Laryngological, Rhinological and Otological Society; for a time a member of the faculty of the

Western Pennsylvania Medical College; a specialist on diseases of the nose, throat and ear, of Pittsburgh, and formerly president of the Allegheny County Medical Society; one of the most prominent specialists of Pennsylvania; died at his home in West View, Pittsburgh, May 20, aged 58.

J. Guy McCandless, M.D. Jefferson Medical College, 1863; a Fellow of the American Medical Association and a widely known physician of Pittsburgh; for many years a member and president of the common and select councils and for one term director of public works of Pittsburgh, and for three terms a member of the State Board of Medical Examiners; surgeon of the One Hundred and Fifty-Second Pennsylvania Volunteer Infantry throughout the Civil War; died at his home in Pittsburgh, May 23, aged 75.

William Dougall, M.D. Northwestern University Medical School, Chicago, 1868; a Fellow of the American Medical Association; once president and later secretary of the Will County (Ill.) Medical Society; president of the Illinois Pure Aluminum Company, Lemont, and for a time chief surgeon of the Illinois and Michigan Canal; from 1879 to 1883, postmaster of Joliet; a veteran of the Civil War; died at his home in Joliet, May 18, from heart disease, aged 73.

George A. Stark, M.D. McGill University, Montreal, 1872; assistant surgeon of the Northern Pacific Railway at Mandan, N. D., and assistant physician at the North Dakota State Reform School; from 1883 to 1889, justice of the peace of Glen Ullin; for twenty-five years health officer of Morton County and for two terms county physician; died at his home in Mandan, N. D., May 6, from cerebral hemorrhage, aged 71.

Mark Delimon Stevenson, M.D. Rush Medical College, 1897; a Fellow of the American Medical Association and a member of the American Academy of Ophthalmology and Oto-Laryngology; vice president of the Summit County (Ohio) Medical Society in 1907, and president in 1908; co-editor of *Ophthalmology;* died at his home in Akron, Ohio, May 21, from septicemia, aged 39.

Hewlitt Whitty Oakley, M.D. University and Bellevue Hospital Medical College, 1904; a Fellow of the American Medical Association and one of the organizers of the Tulare County Medical Association; at one time connected with the medical staff of the S. R. Smith Infirmary, Staten Island, New York; died at his home in Portersville, Calif., May 21, from dysentery, aged 35.

R. Dorsey Coale, M.D. University of Maryland, 1912; Ph.D. Johns Hopkins University; for many years dean of the medical school of the University of Maryland; colonel of the Fifth Infantry, Md. N. G., during the Spanish-American War, and from 1886 to 1909, an officer of that regiment; died in University Hospital, Baltimore, May 17, from cerebral hemorrhage, aged 58.

Thomas H. Maxedon, M.D. Hospital College of Medicine, Louisville, 1887; a member of the Indiana State Medical Association and one of the best-known surgeons of Indiana; local surgeon to the Baltimore and Ohio Southwestern Railway; president of the Metropolitan Police Board of Vincennes; died at his home in that city, May 19, from cerebral hemorrhage, aged 53.

James S. McDonough, M.D. Atlanta (Ga.) Medical College, 1860; one of the oldest citizens of Knoxville, Tenn.; a member of the State Board of Medical Examiners of Tennessee since 1893; surgeon of the Sixty-Third Tennessee Infantry, C. S. A., throughout the Civil War; died at his home in Knoxville, May 16, aged 84.

Alfred C. Clark, M.D. Jefferson Medical College, 1869; a member of the Medical Society of the State of Pennsylvania; for eighteen years medical inspector of Northumberland County, Pa., for the State Board of Health and local surgeon for the Pennsylvania system at Sunbury; died at his home in Sunbury, May 16, aged 70.

William Richard Bevan, M.D. Marion-Sims-Beaumont College of Medicine, St. Louis, 1906; professor of pathology, histology and bacteriology in Epworth University, Oklahoma City; instructor and assistant professor of obstetrics in the University of Oklahoma, Oklahoma City; died recently from tuberculosis, aged 34.

George Clarence Gliddon, M.D. University of Toronto, 1914; of Union, Ont.; captain, Canadian army medical corps and R. M. O. tenth battalion, second brigade, first Canadian expeditionary force; who was seriously wounded at the battle of Langemarck in Flanders; died from his wounds, May 14, aged 26.

James M. McMasters, M.D. Rush Medical College, 1866; of Sauk Center, Minn.; assistant surgeon of Minnesota Volunteers during the Civil War, and acting assistant surgeon, U. S. Army, in 1867 to 1868, with duty at Fort Ridgley; died at the home of his daughter in Valparaiso, Ind., May 8, aged 73.

Edward McVicker Hamaker, M.D. Medico-Chirurgical College of Philadelphia, 1913; who after completion of his internship in the Philadelphia General Hospital, located in Muskegon, Mich., May 20, was found dead in his room in a hotel in that city, May 21, from heart disease, aged 24.

Charles Jewett Lincoln, M.D. Dartmouth Medical School, Hanover, N. H., 1895; a Fellow of the American Medical Association; physician to the Augusta (Me.) City Hospital, and supreme physician to the American Royal Circle; died at his home in Augusta, Me., March 14, aged 45.

Sigismund Cohn, M.D. University of Berlin, Germany, 1888; a Fellow of the American Medical Association and a member of the American Electrotherapeutic Association, and the German Medical Society; died at his home in New York City, May 18, from heart disease, aged 53.

William Jeff. Armstrong, M.D. Bellevue Hospital Medical College, 1883; a member of the Medical Society of the State of Pennsylvania; at one time a member of the Board of Education of Kane, Pa.; died at his home in that place, May 13, from heart disease, aged 61.

James Perry Walters, M.D. Miami Medical College, Cincinnati, 1876; formerly a member of the Illinois State Medical Society and secretary of the Wayne County Medical Society; a veteran of the Civil War; died at his home in Fairfield, Ill., May 9, aged 66.

Michael Freebern Gavin, M.D. Harvard Medical School, 1864; a Fellow of the American Medical Association; surgeon of the Fifty-Seventh Infantry, Mass. V. M., during the Civil War; died at his home in South Boston, May 20, from cerebral hemorrhage, aged 71.

William P. Dillon, M.D. McGill University, Montreal, 1904; of Ottawa, Ont.; major in the Canadian army medical corps and on duty with the Canadian contingent in France; died in General Hospital No. 2, in rear of the British lines near Ypres, France, May 13.

Frank Mills Douglass, M.D. Tulane University, New Orleans, 1905; a member of the State Medical Association of Texas, and formerly president of the Hill County (Tex.) Medical Society; died at his home in Itasca, Tex., May 17, from nephritis, aged 37.

Henry William Muller, M.D. New York University, New York City, 1898; formerly a member of the Medical Society of the State of New York and physical director of the Y. M. C. A.; died at his home in New York City, May 21, from nephritis, aged 44.

James Arthur Robinson, M.D. University of Pennsylvania, Philadelphia, 1882; a practitioner of Taunton, Mass.; who left on a trip to the Pacific coast on May 11; was found dead from heart disease in his room in the Rosslyn Hotel, San Francisco, May 22.

James M. Stevens, M.D. Medical College of the State of South Carolina, Charleston, 1852; surgeon of the Forty-Seventh N. C. Infantry, C. S. A., throughout the Civil War; died at his home near Leicester, N. C., May 17, from heart disease, aged 87.

John George Layton, M.D. Cleveland Homeopathic Medical College, 1895; of Independence, Ohio; died in the Cleveland State Hospital, April 15, from general paresis, aged 50.

Charles H. Jones, M.D. Tulane University, New Orleans, 1876; formerly of Greenville, Miss.; died at his home in Memphis, Tenn., May 6, aged 70.

Patrick H. Thompson, M.D. Tulane University, New Orleans, 1878; of Bluffton, Ga.; died in a sanatorium in Atlanta, Ga., May 10, aged 63.

John W. McMurray, M.D. Homeopathic Medical College, Cleveland, 1890; died at his home in Marion, Ohio, May 11, from arteriosclerosis, aged 75.

George A. Hibbert, M.D. College of Physicians and Surgeons, Chicago, 1893; died at his home in Chicago, May 15, from angina pectoris, aged 48.

Edna Thompson Mathews, M.D. Eclectic Medical Institute, Cincinnati, 1892; died at her home in Dayton, Ohio, May 5, aged 57.

Otto Henry Hund, M.D. New York University, New York City, 1880; died at his home in San Francisco, May 4.

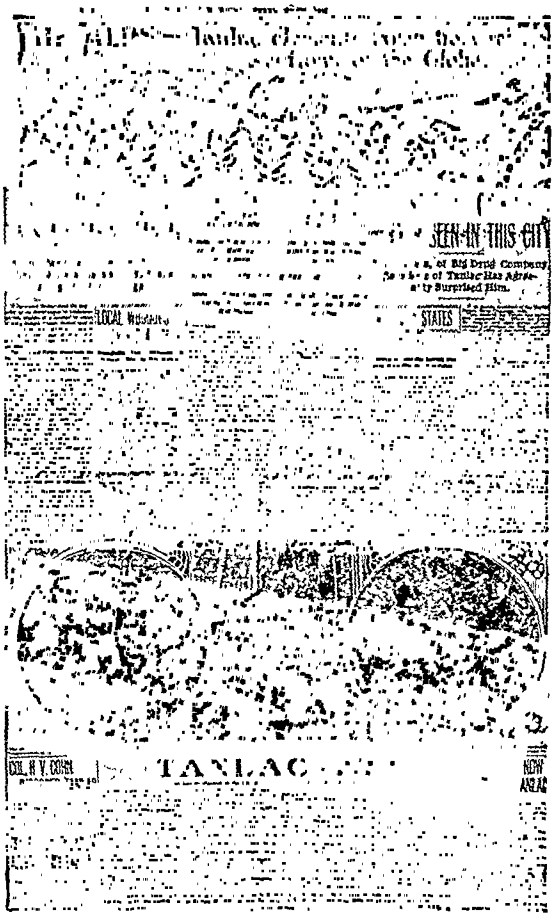
George Nixon Fish, M.D. Trinity Medical College, Toronto, 1898; died at his home in Toronto, May 1.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TANLAC

Tanlac is a product of the Cooper Medicine Company, Dayton, Ohio. The controlling spirit of the Cooper concern seems to be one L. T. Cooper, who has been quacking it for many years. A few years ago it was "Cooper's New Discovery" that was being exploited by L. T. Cooper by the free vaudeville-medicine-show route. In 1907 Cooper was operating the "tapeworm trick" as one of his means of relieving the gullible of their money.


SEEN IN THIS CITY
STATES
TANLAC

Greatly reduced reproduction of an advertisement of Tanlac that appeared in a Louisville (Ky.) paper.

"Cooper's New Discovery" contained 17 per cent. alcohol and was sold as a "tonic and system purifier." Tanlac contains 17 per cent. alcohol and is a "tonic and system purifier."

During the last few months the Cooper concern has been advertising heavily and doing a big business in the southern states and—with the help of the newspapers—has doubtless relieved the people of the South of many thousands of dollars. The claims made for Tanlac are of the usual fraudulent type:

> "Tanlac . . . is not what is commonly called a medicine; it is more than a medicine, being the liquid maximum strength of medicinal properties of a plant discovered by Cooper's uncle, a celebrated scientist, which plant properties, together with other ingredients, obtained their high efficiency under the personal direction of Herr Jos. Von Trimbach, a native German chemist of note in charge of the Cooper laboratory."
>
> "Tanlac is called the magic medicine . . ."
>
> "Tanlac . . . preserves your health, gives you renewed energy, brightens your spirits, lengthens your life . . ."

"Catarrh" is Cooper's catchword. As with the old Peruna fraud every ailment is "catarrh" and the one infallible cure for "catarrh" is—according to Cooper—Tanlac! A number of inquiries having been received regarding this nostrum a bottle of Tanlac was secured and subjected to analytical tests. The report of the chemists of the Association's laboratory follows:

CHEMISTS' REPORT[1]

One original bottle of Tanlac, manufactured by the Cooper Medicine Company, Dayton, Ohio, was submitted to the Chemical Laboratory for examination. The bottle contained 8 ounces of a brown liquid having a wine-like odor, and also an odor somewhat resembling wild cherry. The taste was bitter, resembling gentian. The specific gravity of the liquid at 15.6 C. was 1.0205. Qualitatively, tests disclosed the presence of alkaloids, berberine being isolated and identified. Other alkaloids beside berberine were present, but not identified. Hydrastine and the commoner alkaloids were not found. Tests for emodin were positive. Acid caused precipitation, the precipitate having an odor of licorice. After purification, and treatment with ammonia, the ammonium salt of glycyrrhizic acid was detected. A relatively large proportion of glycerin was present. A small amount of tartaric acid was detected, which would indicate a wine. The residue, which weighed 11.1 per cent., was largely glycerine. The ash was 0.25 per cent. The amount of alcohol was found to be 15.70 per cent. of absolute alcohol by volume. The weight of the alkaloids was 0.017 per cent.

From the examination, it is concluded that Tanlac is probably a vinous extract containing essentially a bitter drug (such as gentian), an emodin-bearing drug (such as buckthorn, rhubarb or cascara), a berberine-bearing drug (in which hydrastine is not present, such as berberis aquifolium), glycyrrhizic acid (from licorice), flavored with wild cherry, and to which has been added a relatively large proportion of glycerine.

NASHVILLE TENNESSEAN and The

22,000 BOTTLES OF TANLAC SOLD BY KNOXVILLE FIRM

MOST PROMINENT PEOPLE IN SOUTH TAKING TANLAC

Include Mayors, County and Circuit Judges Professional Men Etc.

LEXINGTON, KY., DRUGGIST

South's Greatest Drug Store Places Additional Order for 8,000 Bottles.

DeMOVILLE DRUG CO. AWARDED AGENCY FOR NASHVILLE

Agencies Also Established at Clarksville, Columbia, Lebanon and Pulaski—Other Towns Getting in Line.

MRS. BAKER GAINS 20 POUNDS IN ONLY ONE MONTH

Weighed Only 100 Lbs. When She Began Taking Tanlac. Now Weighs 120 Lbs.

WAS UNDER DOCTORS FOR EIGHT YEARS

REMOTE PARTS OF GLOBE

A GERMAN CHEMIST DIRECTS LABORATORY

IS RESULT OF MANY YEARS OF ARDUOUS STUDY

TANLAC SHIPPED TO MANY STATES

A Nashville (Tenn.) paper recently published this three-column advertisement of Tanlac.

Accompanying the bottle of Tanlac, were some "Tanlac Laxative Tablets." These contained phenolphthalein.

The findings of the chemists indicate that Tanlac is essentially a wine to which have been added some bitter herbs, a small amount of laxative and some glycerine. In October,

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[1] This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1915.

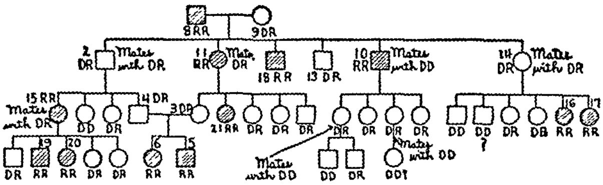
1914, the newspapers of Lexington, Ky., recorded the arrest of L. T. Cooper in connection with his method of exploiting his nostrum. There were several indictments against him to one of which he pleaded guilty, the others being filed. It now seems that Dr. A. T. McCormack, Secretary of the State Board of Health of Kentucky, is asking that these other indictments be revived and the case against this quack be reopened. It is possible that this may result in some restriction of the sale of this alcoholic tonic in the state of Kentucky. There is no doubt that other southern states whose sick are being mulcted by this concern could give equal protection to the public.

Correspondence

Polydactylism as a Hereditary Character

To the Editor:—In his paper on this subject (THE JOURNAL, May 15, 1915, p. 1640), Dr. Brandeis, while by no means deciding the question whether polydactylism is a dominant or a recessive characteristic, seems to assume that the mendelian dominance of either polydactylism or five-fingeredness is an irregular or an imperfect dominance. It does not appear—on carefully considering the family history with which he deals or the other family trees quoted—that such an assumption is really necessary.

Prima facie, I should be more apt to assume from these tables that polydactylism is a *truly recessive trait;* perhaps also venturing the suggestion that a proportion of the human race, larger than one would at first suppose, may have received from their parents factors that, under proper mating conditions, might bring this recessive trait to light.



Squares indicate males, circles, females. Shaded areas indicate affected persons (polydactyls).

Assuming these things, let us suppose that Individual 8 in Dr. Brandeis' tree is really RR in composition, and mates with 9, an apparently normal woman, but really DR in make-up. Obviously their offspring must be either DR or RR in kind: 10, 11 and 18, being polydactyl, are evidently RR; 2, 13 and 14 we must assume to be DR. Since one of Q's children is evidently RR, we must assume that Q's wife is also DR in make-up; of their three other children, one is likely to be DD, the others, including Individual 4, may reasonably be assumed to be DR. Individual 11, by our original assumption, is RR, and the polydactylism of her daughter, 21, proves that her husband is not DD, but presumably DR. (Digressing for a moment, it appears probable that 10, also RR, has mated with a DD, since his offspring are free from the recessive trait.) Returning to Individual 11 (RR as stated, and mated with DR), her daughter, 3, can only be DR: this daughter, 3, weds 4, her cousin, also probably DR, and their two children unite the R germ cells of each parent. If a larger family had sprung from the union of 3 and 4, it might have been anticipated that only one child out of four could have been a polydactyl: the fact that both their children are recessives is paralleled in an opposite way by the progeny of 11: here, instead of the mating of RR with DR giving equal numbers of RR and DR, we find in fact out of five children only one recessive, and that slightly. ("Six fingers left hand [the sixth] very rudimentary.") Dr. Brandeis' tree may then perhaps be amplified as above, symbols DR, RR, etc., being attached, and suggestions interpolated as to probable matings of individuals: the same explanations apply as in the original figure.

W. R. TYMMS, M.D., Gig Harbor, Wash.

Factors in Appendicitis

To the Editor:—In THE JOURNAL, May 8, 1915, p. 1584, a quotation is made from Rosenow to the effect that Heyde, Aschoff and others have called attention to the fact that the anatomy of the appendix favors strangulation of its circulation. These two authors are probably chosen for quotation because they are "made in Germany." One of them published his theory in 1911 and the other published his theory in 1912. *Among "the others" one will find a complete description of* this mechanical theory in a book entitled "Lectures on Appendicitis" by an American author, published in 1896. This book is to be found in medical libraries. It contains the statement that the serious complications of acute infective appendicitis are dependent on swelling of the internal coats of the appendix within the outer constricting sheath of peritoneum. When, for any reason, the inner coats of the appendix become compressed within the less resilient outer sheath of peritoneum, compression anemia follows. Tissues subjected to compression lose their natural degree of resistance to enteric bacteria, which promptly attack any such anemic tissues. Furthermore, proliferating endarteritis of the vessels of the appendix occurs as a result of toxic influence, and still further disables that organ. This American opinion was published fifteen years in advance of that of German authors who are chosen for quotation.

ROBERT T. MORRIS, M.D., New York.

Rigidity of the Right External Oblique in Appendicitis

To the Editor:—Textbooks and literature on appendicitis have laid so much emphasis on rigidity of the right rectus muscle as a symptom, that many cases of appendicitis have been neglected, because of lack of rigidity of the right rectus muscle. Rigidity of the right rectus, we all agree, is the most reliable of the symptoms which we have in appendicitis. There are a few cases, however, in which rigidity of the right rectus is lacking, but if looked for, there will be found rigidity of the right external oblique muscle. The cases of rigidity of the right external oblique muscle, and absence of rigidity of the right rectus, pursue a peculiar course. All cases are considered mild, many patients are up and around, some attending to business, and only a high polynuclear count shows the seriousness of the disease. In over twenty cases seen the past year, in which there was rigidity of the right external oblique, and not of the right rectus, the appendix has been retrocolic or retrocecal in every case. This is a point to which the attention of the medical profession should be drawn, to avoid serious neglect and carelessness.

H. E. RANDALL, M.D., Flint, Mich.

The Country Doctor

To the Editor:—May I carry a little further the comparison made by Dr. Flancher (THE JOURNAL, March 27, 1915, p. 1095), between city physicians and country physicians?

I practice in the country and go 20 miles to set a broken leg, attend a confinement, or treat a child for some common ailment. Like others in my situation, I often have to do without needed help, which a city man could procure. I have to be a "specialist" in everything. How many city doctors would manage all kinds of cases more successfully than we country "hayseeds" do? This is something they seldom think of. The city man writes the books but the country man has so much to study he seldom has time to write. Doctors are like trees. In the city they grow tall and straight, like trees in a thick forest, and reach a height we country doctors cannot attain to. The country doctors are like trees growing alone, where there is plenty of light and air, and where the winds have a full sweep. They grow thick and rugged. Not so much lumber can be cut from their bodies as from the tall, straight ones in the forest, but they have the strength to resist the fiercest storms.

A. C. AMES, M.D., Mountain Grove, Mo.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POISONING FROM SODIUM CHLORID

To the Editor:—I have just heard of a case of sodium chlorid poisoning caused by the ordinary amount of sodium chlorid which is taken with food. Have you records of any cases of sodium chlorid *poisoning?* Are you able to cite literature on such cases.

Edward B. Markey, M.D., Hamilton, Ohio.

Answer.—Excessive doses of common salt may produce death, and, ordinarily speaking, this may be said to be the result of poisoning. It is, of course, possible that a patient may be hypersusceptible to sodium chlorid. In The Journal, Oct. 5, 1912, p. 1290, a case of poisoning with common salt is reported by O. H. Campbell, and an editorial in the same issue, p. 1297, refers to five other cases. In Queries and Minor Notes, Oct. 26, 1912, p. 1560, there is a consideration of poisoning from sodium chlorid when used in large doses as a drug.

LITERATURE ON PELLAGRA

To the Editor:—Please cite recent literature on pellagra to be used in the preparation of a paper on that subject.

O. M. Bourland, M.D., Van Buren, Ark.

Answer.—The following refer to articles which have appeared within the last year:

Italian Research on Pellagra, Foreign News, The Journal, May 22, 1915, p. 1776.

Cencelli, A.: New Theories and Investigations Concerning Pellagra, *Lancet*, London, April 17, 1915; abstr., The Journal, May 15, 1915, p. 1687.

Palmer, E. E., and Secor, S. L.: Treatment of Pellagra by Autoserotherapy, The Journal, May 8, 1915, p 1566.

Fossier, A. E.: Case of Pellagra Treated Successfully with Trisodium Citrate, *New Orleans Med. and Surg. Jour.*, May, 1915; abstr., The Journal, May 29, 1915, p. 1879.

Sanders, T. E.: Organism Probably Causing Pellagra, *Southern Med. Jour.*, March, 1915; abstr., The Journal, April 3, 1915, p. 1194.

Page, B. W.: Etiology and Treatment of Pellagra, *Southern Med. Jour.*, February, 1915.

Singer, H. D.: Mental and Nervous Disorders Associated with Pellagra, *Arch. Int. Med.*, January, 1915, p. 121; abstr., The Journal, Feb. 6, 1915, p. 539.

Blosser, R.: Observations Further Incriminating Sugar-Cane Products as Main Cause of Pellagra in South, *Southern Med. Jour.*, January, 1915; abstr., The Journal, Feb. 6, 1915, p. 543.

Page, B. W.: Etiology of Pellagra, *Med. Rec.*, New York, Jan. 2, 1915; abstr., The Journal, Feb. 6, 1915, p. 542.

Beeson, C. F.: The Thyroid Gland in Pellagra, The Journal, Oct. 12, 1914, p. 2129.

Siler, J. F.; Garrison, P. E., and MacNeal, W. J.: Relation of Methods of Disposal of Sewage to Spread of Pellagra, *Arch. Int. Med.*, October, 1914, p. 453; abstr., The Journal, Nov. 7, 1914, p. 1695.

Jennings, A. H.: Two Years' Study of Insects in Relation to Pellagra, *Jour. Parasitol.*, September, 1914; abstr., The Journal, Oct. 17, 1914, p. 1424.

Goldberger, J.: Beans for Prevention of Pellagra, Correspondence, The Journal, Oct. 10, 1914, p. 1314.

Voegtlin, C.: Treatment of Pellagra, The Journal, Sept. 26, 1914, p. 1094.

Lavinder, C. H.; Francis, E.; Grimm, R. M., and Lorenz, W. F.: Attempts to Transmit Pellagra to Monkeys, The Journal, Sept. 26, 1914, p. 1093.

Etiology of Pellagra, Editorial, The Journal, Sept. 26, 1914, p. 1114.

Pellagra and Potable Waters, Editorial, The Journal, Sept. 5, 1914, p. 868.

Dyer, I.: Treatment of Pellagra, *Texas State Jour. Med.*, July, 1914; abstr., The Journal, Aug. 15, 1914, p. 608.

Child Federation Bulletin Service.—The Child Federation of Philadelphia, May 1, began the demonstration of a new idea in publicity work when it placed in 300 locations in the congested districts of the city, bulletins, 17 by 22 inches, on the "Prevention of the Fly." The bulletin boards are made of sheet iron and are so constructed that the bulletins printed on cardboard, may be placed in them without the use of paste, tacks or other holding means. Twenty social agencies were approached and each was asked to install a certain number of bulletin boards. The location of the boards was selected after a thorough survey of the city. The bulletins to be placed during the coming year number seventeen, and will treat of the general sanitary measures regarding the home, the hygiene of the family, care of the baby, etc.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, July 6. Chairman, Dr. W. H. Sanders, Montgomery.

Alaska: Juneau, July 6. Sec., Dr. Harry C. DeVighne, Juneau.

Arizona: Phoenix, July 6-7. Sec., Dr. John Wix Thomas, Phoenix.

California: San Francisco, June 15-18. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

Connecticut: New Haven, July 13. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; *Eclectic:* New Haven, July 13. Sec., Dr. T. S. Hodge, 19 Main St., Torrington; *Homeopathic:* New Haven, July 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Delaware: Dover and Wilmington, June 15-17. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

District of Columbia: Washington, July 13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Florida: Jacksonville, June 15-16. Sec., Dr. E. W. Warren, 102 Front St., Palatka.

Illinois: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.

Indiana: Indianapolis, July 13-15. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.

Iowa: Iowa City, June 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Kansas: Kansas City, June 8-10. Sec., Dr. H. A. Dykes, Lebanon.

Kentucky: Louisville, June 8-10. Sec., Dr. A. T. McCormack, Bowling Green.

Maine: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Maryland: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.

Maryland: Homeopathic, Baltimore, June 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

Massachusetts: Boston, July 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Michigan: Ann Arbor, June 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Mississippi: Jackson, June 15-16. Sec., Dr. E. H. Galloway, Jackson.

Missouri: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

Nebraska: Lincoln, June 10-11. Sec., Dr. H. B. Cummins, Seward.

New Hampshire: Concord, July 6-7. Regent, Mr. H. C. Morrison, Concord.

New Jersey: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

New Mexico: Santa Fe, July 12. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: Albany, Buffalo, New York and Syracuse, June 29-July 2. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

North Carolina: Greensboro, June 8. Sec., Dr. H. A. Royster, Raleigh.

North Dakota: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, Grand Forks.

Ohio: Columbus, June 8-11. Sec., Dr. George H. Matson, Columbus.

Oklahoma: Oklahoma City, July 13. Sec., Dr. Ralph B. Smith, 502 Daniel Bldg., Tulsa.

Oregon: Portland, July 5. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

Rhode Island: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.

South Carolina: Columbia, June 8. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

South Dakota: Pierre, July 12. Sec., Dr. Park B. Jenkins, Waubay.

Tennessee: Memphis and Nashville, June 25, 26. Sec., Dr. A. B. De Loach, 426 Scimitar Bldg., Memphis.

Texas: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.

Utah: Salt Lake City, July 5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Vermont: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.

Virginia: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.

Washington: Seattle, July 6. Sec., Dr. G. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Milwaukee, June 29-30—July 1. Sec., Dr. J. M. Beffel, 3200 Clybourn St., Milwaukee.

Florida Homeopathic March Report

Dr. J. Burnie Griffin, secretary of the Florida Homeopathic Board of Medical Examiners, reports the written examination held at Jacksonville, March 5-6, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 14, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago Homeopathic Medical College (1886) 80; (1887) 88; (1896) 90, 90; (1900) 86.		
Hahnemann Medical College and Hospital, Chicago (1894) 91; (1896) 90; (1906) 89; (1913) 85; (1914) 89.		
University of Michigan, Homeopathic Medical College	(1899)	92
Pulte Medical College	(1900)	82
Hahnemann Medical College and Hospital, Philadelphia	(1893)	85
Woman's Medical College of Pennsylvania	(1892)	81

Book Notices

The Modern Factory. Safety, Sanitation and Welfare. By George M. Price, M.D., Director, Joint Board of Sanitary Control in Cloak, Suit and Skirt and Dress and Waist Industries, New York City. Cloth. Price, $4 net. Pp. 574, with 257 illustrations. New York: John Wiley & Sons, 1914.

This volume shows evidence of careful, systematic preparation. It considers first the history of the factory and the legal definitions of the term "factory." The growth of the factory system is shown as it has occurred in various nations. The types of modern factories are illustrated, the poor contrasted with the good, and numerous suggestions given as to methods of construction. In a section on factory fires and their prevention, a history of important fires is given and the conditions are analyzed to show the possibility of prevention. An important chapter is that concerned with factory accidents and safety. Of recent years great attention has been given to these points. The author gives many illustrations showing methods of preventing contact with belts, cog-wheels, vats, moving saws and punches. Chapter V considers light and illumination, the prevention of glare, the regulation of light, and closes with a discussion of the standards of the Wisconsin Industrial Commission.

Under Factory Sanitation the chief points concerned are washing and toilet facilities, and the provision of a safe drinking supply. A chapter on welfare work discusses the various means of establishing accident and sickness insurance, profit sharing, old age pensions, food inspection, educational work, etc. Other chapters concern air and ventilation in factories, industrial poisons, gases and fumes, and a summary of factory legislation and factory inspection.

The list of appendixes includes a selected bibliography for further study, a partial list of the more important investigations authorized by federal and state legislatures, and suggestions for the organization and execution of exit drills. There is an adequate index, the book is beautifully illustrated, is printed on good paper and seems to be wholly complete and authoritative.

Bodily Changes in Pain, Hunger, Fear and Rage. An Account of Recent Researches into the Function of Emotional Excitement. By Walter B. Cannon, George Higginson Professor of Physiology in Harvard University. Cloth. Price, $2 net. Pp. 311, with 39 illustrations. New York: D. Appleton & Co., 1915.

"Fear, rage, pain and the pangs of hunger," says Dr. Cannon, "are all primitive experiences which human beings share with the lower animals. These experiences are properly classed as among the most powerful that determine the action of man and beasts. A knowledge of the conditions which attend these experiences, therefore, is of general and fundamental importance in the interpretation of behavior."

In this book Dr. Cannon has compiled a number of original articles which have appeared in current medical literature during the past year, and which represent work by himself and his associates in the Harvard Physiological Laboratory. An attempt has been made to arrange the discussions in a consecutive manner, and to explain technical terms so that the book may be understood by any intelligent reader.

Pathological Technique. A Practical Manual for Workers in Pathological Histology and Bacteriology, Including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By Frank Burr Mallory, A.M., M.D., Associate Professor of Pathology, Harvard University Medical School, and James Homer Wright, A.M., M.D., S.D., Pathologist to the Massachusetts General Hospital. Sixth Edition. Cloth. Price, $3. Pp. 536, with 174 illustrations. Philadelphia: W. B. Saunders Company, 1915.

Rapidly appearing modern advances in pathologic methods require the issuing of new editions of standard texts at frequent intervals. The sixth edition of Mallory and Wright is extended by the inclusion of many such methods; for example, Lange's colloidal gold test, the complement fixation test for gonorrhea, and Bielschowsky's silver impregnation stain for nerve fibers. The authors do not attempt to give all the available methods, but merely such as have proved practical and efficient in their experience.

The Chemistry of Colloids and Some Technical Applications. By W. W. Taylor, M.A., B.Sc., Lecturer in Chemistry at the University of Edinburgh. Cloth. Price, $2 net. Pp. 328. New York: Longmans, Green & Co., 1915.

This book is based on a series of lectures to advanced students in chemistry, and therefore discusses the subject from the standpoint of the chemist. There is, to be sure, a brief final chapter on the applications of colloid chemistry to biology, but it covers little of the great amount of work that has been accomplished in this field. Physicians who read German will be able to learn more from the books of Ostwald and Bechhold that will interest them, but, lacking facility in reading scientific German literature, they can at least secure the fundamental principles from this work. It is brief and clear.

Miscellany

Ben Franklin's Views

At my first admission into this printing-house I took to working at press, imagining I felt a want of the bodily exercise I had been us'd to in America, where press work is mix'd with composing. I drank only water; the other workmen, near fifty in number, were great guzzlers of beer. On occasion, I carried up and down stairs a large form of types in each hand, when others carried but one in both hands. They wondered to see, from this and several instances, that the Water-American, as they called me, was stronger than themselves, who drank strong beer! We had an alehouse boy who attended always in the house to supply the workmen. My companion at the press drank every day a pint before breakfast, a pint at breakfast with his bread and cheese, a pint between breakfast and dinner, a pint at dinner, a pint in the afternoon about six o'clock, and another when he had done his day's work. I thought it a detestable custom; but it was necessary, he suppos'd, to drink strong beer, that he might be strong to labor. I endeavored to convince him that the bodily strength afforded by beer could only be in proportion to the grain or flour of the barley dissolved in the water of which it was made; and there was more flour in a pennyworth of bread; and therefore, if he would eat that with a pint of water, it would give him more strength than a quart of beer. He drank on, however, and had four or five shillings to pay out of his wages every Saturday night for that muddling liquor; an expense I was free from. And thus these poor devils keep themselves always under.—*Autobiography of Benjamin Franklin.*

Neither Are We

It is with some interest we learn that there has been formed in some American cities a league of women for the purpose of compelling medical men to adopt a certain method of treatment. These good ladies have heard of the bliss of "twilight sleep" and of the ease of "painless labour," and while willing to produce children they are determined to do it with as little trouble to themselves as possible. This is so far a reasonable attitude, and one with which we do not quarrel. But the further step to the insistence on the rendering of labour painless by the use of scopolamin and morphin takes too many things for granted. It assumes, for instance, that scopolamin and morphin invariably produce the desired effect, and that they do so without appreciable danger. Unfortunately, neither of these propositions has yet been established. We are far from decrying the use of these drugs under suitable conditions and with the necessary care. But all our experience of them goes to show that their employment needs very careful attention — attention which it is not always possible to give in the conditions of ordinary obstetric practice. Whether these conditions will be modified in the future so as to permit of a wider use of these drugs remains to be decided, but their haphazard use at present is greatly to be deprecated. However, the ladies of the "Painless Labour League" have made up their minds. They are going to have their labours painless, and they are, as a first step, setting themselves to classify practitioners according to whether they use scopolamin or do not. The names of those who do not use the drug are to be put on the black list, and women are to be warned against employing them. We are glad to say that in these countries we are not yet used to having our therapeutic judgment compelled in this way.—*Medical Press and Circular*, May, 1915.

Statistics of Appendicitis in the Prussian Hospitals in 1912

Appendicitis seems to have greatly increased in recent years. Up to the year 1905 in the various hospitals of Prussia these cases were included in the group of peritonitis, of which the total number had increased from 896 (399 men, 497 women in 1877, to 15,918 (8,402 men, 7,516 women) in 1905. From 1906 on, the cases of appendicitis and peritonitis were tabulated separately, and it was found that while the former increased greatly, the latter did not increase in any noticeable quantity. The statistics from 1906 to 1912 showed that the cases of appendicitis in this period were 16,781, 19,285, 22,813, 25,689, 31,425, 38,555 and 41,503, whereas the statistics for peritonitis were 2,390, 2,498, 2,512, 3,710, 4,401, 3,459 and 3,628. In 1906 there were 9,184, or 54.73 per cent., men, and 7,597, or 45.27 per cent., women. In 1912 there were 21,225 men, or 51.14 per cent., and 20,278 women, or 48.86 per cent. The death rate in this disease was 7.7 per cent. in 1906 as compared with 5.45 per cent. in 1912 for men, and 5.45, as compared with 3.61, for women. The number of operations was much greater among the young than among the adult, and the mortality proportionately greater according to the youth of the patient. There seems to be no definite increase in mortality among the adults as related to increasing age.

Medicolegal

Damages for Injuries Causing Epilepsy

(Louisville & N. R. Co. vs. Winkler (Ky.), 173 S. W. R. 151; Galveston, H. & S. A. Ry. Co. vs. Roemer (Tex.), 173 S. W. R. 229)

The Court of Appeals of Kentucky affirms, in the first case, a judgment for $2,500 damages in favor of the plaintiff, Winkler, for personal injuries he received in an accident on a freight train on which he was serving as a conductor. The court says that while Winkler was seated in the caboose he was pitched forward about 10 feet, and his head struck the water cooler in the front end of the car. A gash was cut to the bone on the right side of his head, and he suffered other injuries which at the time he thought were of a minor nature. It was contended that the damages were excessive because, before this injury, Winkler was suffering serious consequences from an accident which happened to him about five years before. The cause of that accident was not explained, but it appeared that he received a blow on the left side of his head, and he admitted that he had one spell of epilepsy apparently traceable to it. Other witnesses testified to having seen him have as many as a dozen epileptic fits during the five years preceding, but the evidence showed that they were not frequent, were of short duration, and, with perhaps one exception, there was no interference with the performance of his duties as conductor. In the injury here complained of he received a depressed fracture of the skull on the right side of his head. From January 3, the time of the accident, to January 26, when he returned to work, he was under the care of a physician most of the time, and from then until October he worked most of the time. He then had to give up his work entirely because of the increasing frequency and severity of the epilepsy. Medical testimony showed that after this last injury each spell would affect him for several days; that he became extremely nervous, and lost weight; that he had a twitching and jerking of the muscles in his face and jaws, and impediment in his speech, and the neck muscles had a certain amount of paralysis numbness; that his sight and hearing were impaired, and that his mentality had become very weak. A physician who examined him a few months before the accident, and again in December following, attributed the origin of the epilepsy to the old injury on the left side of the head, but said that the last injury on the right side had greatly accentuated the trouble. Under all the evidence, the court is unwilling to say that the verdict was excessive.

In the second case, wherein the plaintiff Roemer, in attempting to descend from the top of a freight car, was precipitated to the ground by a handhold giving way, the Court of Civil Appeals of Texas says that the case was peculiar, and there was presented to the jury a great mass of testimony pro and con on the question of whether plaintiff Roemer feigned the symptoms of epilepsy or whether he really suffered from terrible convulsions. This question was solved in his favor, and the court must take it for granted that he was afflicted as he claimed to be. If the testimony in his favor was true, at the age of 27 he received injuries which made him an invalid for life, and his affliction was such as to cause him constant dread, mental depression and much suffering. The court cannot say that a verdict of $20,000 in his favor was excessive, and a judgment for that amount is affirmed. The testimony of a physician was admissible, although he had great difficulty in determining whether he merely suspected that the plaintiff's fall and injury caused the condition in which he found him, or whether it was his opinion that such was the case, but finally stated that it was his opinion.

Hospital Not Liable for Death from Smallpox

(Jones vs. Sisters of Charity of the Incarnate Word (Tex.), 173 S. W. R. 639)

The Court of Civil Appeals of Texas affirms a judgment in favor of the defendants, whom the plaintiff had sued for damages for the death of his wife, who died from smallpox after she had been placed in the defendants' hospital to have an operation performed on her. The court says that, among the facts established by the undisputed evidence, it appeared that a physician had advised that it was necessary to have the operation, whereupon Mrs. Jones' son asked the physician to make arrangements to take his mother to the defendants' hospital. This the physician did, and notified the son, who then took his mother to the hospital, where they were met by one of the Sisters, and Mrs. Jones was given a room in a new building which had been recently added to the hospital, with which it was connected. At that time there was a smallpox patient on the opposite side of the hospital, and on a different floor from that on which Mrs. Jones was placed. The Sister who received Mrs. Jones did not inform her or her son that there was a case of smallpox in the hospital, and they were both ignorant of that fact; but the physician, who acted for Mrs. Jones and her son in making the arrangement with the hospital authorities, knew when he made the arrangements of the existence of the case of smallpox in the hospital. Other cases of smallpox thereafter developed, and, on the fourteenth day after Mrs. Jones was operated on, and when she was fully convalescent from the operation, she was stricken with smallpox, and died from that disease in a few days. However, there had never been a case of smallpox in the room, or in the portion of the hospital in which Mrs. Jones was placed, and no case except hers developed in that portion of the building. The court agrees with the trial judge that the facts were not sufficient to require the submission to the jury of the question of the defendants' liability for damages for the death of Mrs. Jones. There was no evidence of any intentional concealment on the part of the hospital authorities of the existence of the case of smallpox. Mrs. Jones' physician, who knew of the existence of the smallpox therein when he made the arrangements for her to enter the hospital, evidently thought it perfectly safe for her to go there, or he would have advised her to go elsewhere to be operated on. The health officer of the city, who gave directions as to the quarantine of the first patient, did not prohibit the reception of other patients in the hospital. The court cannot see how the Sisters could be held negligent for doing that which the most eminent medical authorities, with a full knowledge of the situation, regarded as safe. The plaintiff's wife in some unaccountable way may have contracted the disease from cases which occurred in the hospital, but the hospital authorities could not, in the circumstances, have reasonably anticipated that she would contract the disease, and could not therefore be held to have been guilty of negligence in failing to inform her when she applied for admission that there was a case of smallpox in the hospital. The trial court instructed the jury to find a verdict for the defendants, and rendered judgment in accordance therewith, which judgment should be affirmed.

A Rupture Caused by Strain is an Accident or Untoward Event

(Poccardi vs. Public Service Commission (W. Va.), 84 S. E. R. 242)

The Supreme Court of Appeals of West Virginia holds that a rupture caused by a strain while at work is an accident or untoward event, arising in the course of employment, and compensable under the workmen's compensation act. Proof of apparent previous good health, a heavy and unusual lift in the course of work, discovery of the rupture on the second day thereafter, death from surgical operation for relief thereof, and opinion of the operating surgeon that the rupture was caused by the lifting, is sufficient to establish accidental injury in the course of employment, within the meaning of said act. The court says that, responding to medical criticism of the theory of rupture by strain or exertion, the Washington Industrial Insurance Commission has adopted rules requiring proof, in cases of claims predicated on hernia: (1) That its origin was recent; (2) that it was accompanied by pain; (3) that it was immediately preceded by accidental strain in hazardous employment; and (4) that it did not previously exist. Similar rules have been adopted by the commission. Notwithstanding the criticism calling forth these rules, they impliedly admit possibility and probability of rupture from a strain, when the strain and rupture are in close relation. So does an article by the attorney for the Michigan compensation board, published in the National Compensation Journal, brought to the attention of the court by the brief for the commission. Both the rules and the thesis admit the English proposition that an internal injury, resulting from a strain while at work, is an accident, within the meaning of the act, and their limitations or restrictions on proof of the fact have not been judicially approved.

May Inquire About Angle at Which Roentgenograms Have Been Taken

(Baltimore & Ohio Railroad Co. vs. Whitacre (Md.), 92 Atl. R. 1060)

The Court of Appeals of Maryland, in affirming a judgment for damages for personal injuries in favor of plaintiff Whitacre, says that several exceptions were taken relating to the taking of a roentgenogram of the hip bone, which was claimed to have been fractured—whether the angle at which taken would or would not tend to disclose or conceal any such fracture. Evidence had been given by physicians of the fact of fracture, discovered by manipulation; but the use of photography in cases of this character is now so universally recognized that it is properly regarded as evidence of the strongest sort in any such case, and yet, as is well known, the lights or shadows produced by the angle of light may make a material difference in the appearance. It was therefore entirely proper that the witness should be fully examined on this point.

Mistakes.—The cynical philosopher laments the pity that in life we only get our lessons when they are of no use to us. It is worth while, nevertheless, to keep burning brightly that purifying fire, the fear of making a mistake, remembering in all humility that most mistakes are in reality avoidable, avoidable simply by method, the harness without which only the horses of genius can travel.—Adolphe Abrahams, *Practitioner*, London, March, 1915.

Society Proceedings

COMING MEETINGS

American Medical Association, San Francisco, June 21-25.

American Academy of Medicine, San Francisco, June 25-28.
American Association of Anesthetists, San Francisco, June 21.
American Climatological and Clin. Association, San Francisco, June 18-19.
American Laryn., Rhin. and Otol. Society, Chicago, June 15-16.
American Ophthalmological Society, New London, Conn., July 6-7.
American Society of Tropical Medicine, San Francisco, June 14-16.
American Surgical Association, Rochester, Minn., June 9-11.
Arizona Medical Association, Prescott, June 17-18.
Maine Medical Association, Poland Springs, June 9-10.
Massachusetts Medical Society, Boston, June 8-9.
Montana State Medical Association, Bozeman, July 14-15.
Nat'l Assn. for the Study and Prev. of Tuberculosis, Seattle, June 14-16.
Nevada State Medical Association, Reno, June 17-19.
New Jersey Medical Society, Spring Lake, June 22-24.
North Carolina State Medical Society, Greensboro, June 16.
Washington State Medical Association, Tacoma, July 20-22.

AMERICAN NEUROLOGICAL ASSOCIATION

Forty-First Annual Meeting held at New York, May 6-8, 1915

The President, Dr. George W. Jacoby, in the Chair

Postnatal Growth of the Brain Under Experimental Conditions

Drs. H. H. Donaldson, S. Hatai and King, Philadelphia: The general results of studies on the rat's brain are applicable to the human brain. Postnasal increase in the weight of the brain is due almost entirely to the enlargement of cell elements already present at birth. The increase in brain weight between birth and maturity is, in the rat, about ninefold. This corresponds to a doubling on the average of the initial diameters of the cells. Increase in size is most evident in the cell bodies of the neurons, but the formation of the myelin contributes more than any other single process to the increase in weight. Under all experimental conditions, the proportional weights of the divisions of the encephalon remain the same (except in the case of the bulbi olfactorii and flocculi). The conditions under which studies have been made are here grouped in accordance with their general effects on brain weight: 1. Unfavorable conditions. Domestication; some defective diets; disease (lung disease). 2. Indifferent conditions. Quantitative underfeeding with wholesome diets; some defective diets; inbreeding; gonadectomy. 3. Favorable conditions. Highly varied diets; exercise. Conclusions and applications.

Relation of Structure and Function in the Nervous System

Dr. Stewart Paton, Princeton, N. J.: The first period of life is that preceding the incidence of the nervous system as an active factor in the mechanism of adjustment. It is characterized by a few responses which are primitive in character. Only in the lower vertebrates do we find that any movements of the body take place during this primitive period of embryonic life. We have a very delicate and fairly defined proof that the nervous system is beginning to play its rôle. We have another important sign in the incidence of neurofibrillation. The appearance of the neurofibrils is probably one of the finest indications that we have of the incidence of function of the nervous system. The heart beats have begun and very probably are initiated without the interference of the nervous system. The heart may be looked on as an elaboration of a function which exists in chemical functions. As soon as the nervous system comes in, a great change takes place. What do we find in the nervous system at this time? We find something very striking indeed, and I believe something that throws great light on practical neurologic problems. In the first place, we find that an enormous preparation has gone on in the whole system preceding the incidence of function. It is really almost startling when one sees the great preparation in the spinal cord, the middle and the upper part of the medulla which has taken place in the differentiation of tissue. The most striking sections you will find in the region of the development and persistence of the ancestral type and enormous development of the cranial nerves. Undoubtedly these developments of the cranial nerves are transmitted to us from our ancestors lower down in the scale. Then if we go a little higher up in the medulla there is a very great development of the trigeminus, and in the embryo at this stage you can readily trace three branches coming off from the trigeminus. If we go one step higher in the medulla we come to the third nerve, which has no possible use at this stage of the life of the embryo, and yet is fully developed. What does this mean? The other point is that if we take this embryo just before the responses have begun, we find some very interesting conditions that I think will interest you practical neurologists. We find that such organs as the heart are definitely supplied with neurofibrils. You can trace out the whole cardiac mechanism. In addition to that you will find that an organ like the thymus has an enormous nerve supply. At an early stage, before the reactions of the body begin, the thymus has a definite and really an enormous nerve supply.

DISCUSSION

Dr. James J. Putnam, Boston: I would ask Dr. Paton whether he would be willing to accept all the conclusions to which the view that structure does really and truly precede function would logically lead. It is doubtful whether he would be willing to accept the conclusion that everything we know, learn and think as human beings, love of justice, honor and truth, are really nothing but the expression of structure, which itself is nothing but the expression of a rhythmic chemical process taken in the usual meaning of that term. It seems to me that is the conclusion to which we must come. Either structure precedes function or function precedes structure. From our own observation of ourselves, of thoughts and wills, we would think that function precedes structure. These researches of Dr. Paton's seem to indicate the reverse.

Dr. Philip Coombs Knapp, Boston: One simple illustration that structure must necessarily precede function can be brought out from this fact: We are conscious of our functions. We are by no means conscious of the structure. The absolute necessity of the structure preceding function is shown by the fact that unless we have a proper visual apparatus, the person remains blind and never can see. But any one who has experience in teaching ought fully to realize that it is not the vague transcendental desire to know which accomplishes the acquisition of knowledge, but rather the ability of the student to grasp the idea and to develop his knowledge. Experience in teaching shows that in spite of the best-developed schemes of instruction, in spite of every desire on the part of the pupil to learn and in spite of every effort of the teacher, a certain percentage of the pupils, by reason probably of a defect of structure, are going to remain hopelessly stupid, a condition against which one regards oneself as powerless.

Dr. Stewart Paton, Princeton, N. J.: So far as guinea-pigs are concerned, my statements are true. The criticism was very well taken about the possibility of function preexisting. Of course I had only a few simple reactions in mind. As to the other higher reactions, I think it will be a long time before we get to them. I hope my hearers will not take what I have said dogmatically as applied to the human being, and think of me only as an enthusiast in regard to the guinea-pig.

Ventricular Hemorrhage

Dr. Alfred Gordon, Philadelphia: I have seen seven cases of extraventricular hemorrhage and five cases of primary intraventricular hemorrhage. Erosions of the walls of the ventricles, rupture of the vessels of the choroid plexus and miliary aneurysms were found in the five cases. In all the cases, profound changes of all layers of the walls of the vessels and especially in the intima were present. I would call special attention to the following symptoms: sudden onset without premonitory symptoms, profound coma at the outset and continuing for several days without improvement, absence of genuine paralysis, absence of rigidity and contracture during the days following the seizure, and absence of the toe phenomenon. All these symptoms were so uniformly present in every one of the five cases of primary ventricular hemorrhage that pathognomonic inferences are permissible. In three cases there was a displacement of the brain tissue on the side opposite the hemorrhage. It is possible that the profound comatose state was due to this factor, and hence a decompression on the sound side may be of benefit. Accordingly, an operation was performed in one case, and considerable amelioration of the comatose state was obtained. Unfortunately, the other patients did not give their consent for surgical intervention.

DISCUSSION

Dr. Philip C. Knapp, Boston: I have seen a number of cases of intraventricular hemorrhage, most of them, however, of the secondary variety. I can hardly agree with the symptomatology which Dr. Gordon has given. In the ordinary symptomatology of the case, it has differed very little from that of an ordinary case of ventricular hemorrhage, excepting that the coma has been a little more sudden perhaps, and naturally distinctly more profound. In practically every case there have been distinct signs of hemiplegia as we ordinarily detect them in a person who is comatose. The one striking feature, however, in all the cases of ventricular hemorrhage has been that, although the duration of life is too short for contracture to develop, there has been a distinct rigidity of both sides. In no case have there been generalized convulsions. In a number of cases confirmed by necropsy I have felt that the rigidity and twitchings of the limbs are so characteristic as to warrant the diagnosis of intraventricular hemorrhage.

Dr. Alfred R. Allen, Philadelphia: At Dr. Spiller's instance a number of years ago, I studied in his laboratory the cases of ventricular hemorrhage with particular reference to the rigidity and twitchings. As I remember the specimens, in Dr. Spiller's cases they did not bear out the theory that of necessity there was any relation between rigidity and twitchings and ventricular hemorrhage.

Dr. Ernest Sachs, St. Louis: It is essential to recognize these cases, and if they are recognized, it seems that it is misdirected effort to do anything but try to approach the hemorrhage itself. To try merely to relieve pressure without trying to remove the extensive hemorrhage which is present seems unwise. I did not hear Dr. Gordon mention one symptom which has been described as rather characteristic of ventricular hemorrhage, and that is excessive temperature. I have been rather interested in this point from the physiologic point of view. It has been asserted by a number of experimental physiologists that this symptom is due to irritation of the fine fibers that lie along the floor of the ventricle. I have never been able to substantiate that, and am rather anxious to hear whether these cases, if they are pure ventricular hemorrhages, show that symptom.

Dr. E. E. Southard, Boston: Relative to the hyperpyrexia in ventricular hemorrhage, there are sequestered cases in which the rupture of the vessel is of infectious origin. About ten years ago I had occasion to report two cases of bacterial apoplexy in which the organism of the streptococcus was found; these hemorrhages were from erosions in the wall.

Dr. Alfred Gordon, Philadelphia: In reply to Dr. Knapp's remarks with reference to hemorrhage, I would state that, as Dr. Knapp saw only secondary hemorrhages, his remarks in reference to this have no bearing on the subject discussed by me because I spoke particularly of primary hemorrhage. The five cases of the lateral ventricles alone were all uniformly accompanied by paralysis, no toe phenomenon and marked patellar reflex on the paralyzed side. In reference to the question of temperature, the primary case has at first no rise of temperature.

Intracranial Telangiectasis

Dr. Ernest Sachs, St. Louis: I report two cases, both having jacksonian convulsions, but no other evidence of intracranial pressure. The eyegrounds were normal and the Wassermann reaction negative. In the one case, on the opening of the dura, a huge bluish mass of vessels protruded, which were so dense in places that the underlying cortex could not be seen. This mass lay over the motor area. There were no branches connecting with the dural vessels. In the second case the process was entirely confined to the dura, there being connections, however, between these vessels and the cortical vessels. Ligation of all these vessels relieved the symptoms and resulted in a cure. There are a number of cases in the literature which resemble one or the other of these cases, but they have usually been called angioma. A study of these cases, however, has led me to believe that these are not true angiomas but congenital tumors—telangiectasis. It seems essential to distinguish between true angioma, a neoplasm, and these congenital conditions. When reclassified they constitute a group which must be kept in mind in every case of jacksonian epilepsy. The clinical picture is quite a definite one: 1. Attacks of jacksonian epilepsy occurring at long intervals in nonsyphilitic young persons. 2. Unconsciousness of long duration. 3. No evidence of increased intracranial pressure. 4. A very slow progression of symptoms. 5. Telangiectases on the head or face. For this condition I suggest the name "intracranial telangiectasis."

DISCUSSION

Dr. M. Allan Starr, New York: The distinction Dr. Sachs has made is an exceedingly important one and should by all means be adopted. I erroneously, as I now see, reported some years ago as an angioma a case quite similar to the second case of Dr. Sachs. That was a wrong classification; it was a case of telangiectasis. The case was an interesting one clinically. It came to operation and Dr. McCosh tied off these vessels. The patient was a boy of 17 who was brought to me from Charleston, S. C., to the Presbyterian Hospital because he was suffering from very peculiar attacks. These attacks had occurred for a year. They had begun at the age of 15. They were characterized by a sudden severe, intense pain in the pyramidal region on the left side. The pain was located over an area the size of a half dollar. The attack would begin gradually, and for three days he was in the most intense agony, and the agony was so great that by the end of the second day he was in a state of acute mania. He was entirely uncontrollable, fighting every one who came near him, and these attacks of mania had been increasing up to the time he was brought to New York. He suffered from these attacks at two weeks' intervals. No diagnosis had been made; there were no localizing signs. Between the attacks he was entirely normal in every way. There was no choked disk, and the condition was quite a mysterious one. The attacks appeared to resemble in a way attacks of cortical epilepsy, although there was absolutely no spasm. There was an area of tenderness over the skull where he felt pain, which remained between the attacks. McCosh decided it was worth while to make an exploratory trephining operation. He was trephined over the area of tenderness, and the dura was apparently normal; but on cutting through the dura there was found one of these conditions of telangiectasis. There was a mass of veins on the surface, and they resembled more a mass of fishworms than anything I could think of. The mass was tied off. The boy made a prompt recovery. He had temporarily a condition of complete astereognosis with ataxia of the right hand which, after three days, passed away. I heard from him two and three years after the operation, and he had been perfectly well up to that time.

Dr. Alfred Gordon, Philadelphia: In the proceedings of the Neurological Society of Philadelphia, published in the *Journal of Nervous and Mental Diseases* several years ago, you will find a description of a case almost identical with that of Dr. Sachs. It was that of a young man of 30, who for fourteen years, if not more, had attacks of convulsions in the right leg alone; never in the arm. The attacks were accompanied by loss of consciousness. Dr. DaCosta opened his skull on the opposite side in the upper portion and in the area corresponding to the center, and he found a square shaped appearance of the vein, surrounded by four veins as large as a little finger. The veins were ligated, and the patient made a good surgical recovery. He developed a mild asterognosis in the right arm, and the convulsions ceased for a while. About six weeks later the convulsions returned. The patient later on came to see me again, and said that on exceedingly rare occasions he would have an attack.

Dr. E. B. Angell, Rochester, N. Y.: I had a case of jacksonian epilepsy develop in a youth of 16 or 17. The attacks were so characteristic that it was easy to locate the lesion. The boy was operated on by Dr. Zimmer of Rochester very successfully. In this case we found the same condition as that described by the speakers. This patient recovered and has stayed well for fifteen years.

Dr. J. Ramsay Hunt, New York: Since Cushing's paper of a few years ago, I have been on the lookout for such cases with intracranial complications. I recall three cases. One was an old infantile hemiplegia in which there was a contralateral hemiplegia with epilepsy. The other case was that of a man who had a trigeminal nevus and who in his fiftieth year developed epilepsy. The epilepsy, however, was not of the jacksonian type. It was interesting, however, that always before the attack of epilepsy he would have a period, sometimes several hours, of severe pain directly beneath the trigeminal nevus, so there may have been in such a case a connection between his epilepsy, which was generalized, and the vascular lesion of the dura. One man I saw had a congenital bunch of veins, and all through his life had been subject to periodical headaches somewhat suggesting migraine. He states that before these headaches these veins would always begin to swell. Of course the relationship between the veins and the headaches is obscure, but I thought it always well to bear in mind the possibility of intracranial complications in these cases of trigeminal nevi.

Mental Disturbances in the Feebleminded

Dr. William N. Bullard, Boston: The character of attacks of mental disturbance in the feebleminded is quite distinctive. In a person who shows only the ordinary conditions of feeblemindedness or idiocy, there occurs without any exciting cause sufficient under ordinary conditions to produce such an effect a sudden outburst of violence or temper. They scream, strike, kick, bite, destroy clothing and furniture and often require forcible restraint; they are obscene and profane. The attack lasts only one or a few days. There are usually prodromal symptoms such as listlessness, indifference and unusual actions.

Case of Wilson's Disease—Progressive Lenticular Degeneration

Dr. Frederick Tilney, Brooklyn: This case presented a typical syndrome of progressive lenticular degeneration, as described by Wilson. It ran a moderately acute course, terminating in death in fifteen months. The outstanding clinical features were the marked hypertonicity of the somatic musculature and the evidence of extreme toxicity. A preliminary report of the pathologic findings in the brain is given, and with this the histologic findings of the spinal cord, liver, spleen, kidney, thymic remains, thyroid, heart, lungs and suprarenal bodies.

DISCUSSION

Dr. H. H. Hoppe, Cincinnati: I had a case in a woman of 45 which presented quite a number of the features of Wilson's disease. There was hypertonicity associated with constant athetoid movements. The legs were constantly in a state of motion and the feet inverted. There are no pathologic changes in the reflexes, excepting that they are increased. The woman's mental state is practically normal, excepting that she is constantly in a state of rather pleasant frame of mind.

Dr. A. R. Allen, Philadelphia: Wilson has so limited his disease, so exactly described what it is pathologically as well as clinically, that it is very difficult to make a diagnosis of Wilson's disease pure and simple, outside of the necropsy room.

(To be continued)

ASSOCIATION OF AMERICAN PHYSICIANS

Thirtieth Annual Meeting held at Washington, D. C., May 11-13, 1915

The President, Dr. S. J. Meltzer, presiding

SYMPOSIUM ON CIRCULATION

Important Contributions to Clinical Medicine During the Past Thirty Years from the Study of Human Blood Pressure

Dr. Theodore C. Janeway, Baltimore: In Flint's "Practice of Medicine," published in 1886, there is a passage referring to an increase of blood pressure in cases of small granular kidney and in cases of apoplexy. This showed an appreciation of the problem from facts learned by the unaided senses. A little later, Delafield, in this association, spoke of cases with arterial narrowing, with increased intravascular tension, but no measurements of pressure were referred to. In 1889, Stengel read a paper on athletics, but there was no mention made of blood pressure observations. In 1903, Cabot presented observations on blood pressure in man, and in 1904, there was a second paper by Cabot on observations of blood pressure by the sphygmomanometer. Since then the programs have always contained some titles bearing on this subject. What has been the real gain? There has been developed an easily available method by which any physician can gain by measurement essentially accurate information concerning both the systolic and diastolic pressures in the arteries. It has made a clinical entity of essential hypertension, of cardiovascular disease. It has disclosed the high pressure of the eclamptic state, and the low pressure of amyloid kidney. It has revealed the curious fact that in aortic regurgitation the pressure is higher in the leg than in the arm.

The study of average human blood pressure in connection with life insurance statistics has constituted an important and distinctively American line of research; Fisher's statistics are most important and indicate the normal increase of blood pressure with age. The tendency is to agree with Lauder Brunton and Cooke that 135 mm. to midlife and 145 mm. thereafter mark the limits of normal maximum variations in man. We have learned, in individual cases, however, not to view hypertension with so serious a prognostic eye. From the therapeutic standpoint, the recognition of the greater importance of cardiac conservation and adequate circulation than reduction of abnormally high pressure has been a very important contribution to our knowledge. The beneficial effect of digitalis in maintaining compensation in these states is also a valuable contribution. The study of the effects of caffein, strychnin and other allied heart stimulants in connection with observations of the blood pressure has resulted in disillusionment with respect to the value of these agents. Perhaps the most important of all the contributions to clinical medicine growing out of the study of human blood pressure have been the theoretical considerations having to do with the origin and explanation of the degenerative cardiovascular diseases, and these considerations must continue to be the basis of further study.

Dyspnea in Cardiac Diseases

Dr. Francis W. Peabody, Boston: *Acidosis plays an insignificant part in the dyspnea of simple cardiac diseases. Acidosis is a more important factor in the dyspnea of cardiorenal disease.* The second conclusion might be expected from the facts that acidosis is often present in cardiorenal disease and that dyspnea is often present in the absence of cyanosis. To these facts may be opposed the objections that the acidosis is usually slight and that the dyspnea is clinically different from the hypnea of diabetes; in cardiorenal disease the dyspnea can be *compared with exercise* dyspnea.

In making our observations, a respirator was used and by rebreathing the carbon dioxid content of the respired air was increased. The respiratory products were measured and the stimulating effect of carbon dioxid was noted. Respiration in most persons is increased so that pulmonary ventilation is doubled when the carbon dioxid reaches 4.5 or 5 per cent. In mild cardiac valvular disease, subjects behave in precisely the same way; in cardiorenal subjects, however, pulmonary ventilation is doubled when the carbon dioxid reaches 2.5 or 3 per cent. This difference in behavior is explainable on the basis that the reaction of the blood is more easily disturbed in cardiorenal disease on account of *the high acidity induced by the acidosis.* The experiments were further carried on to note the influence of alkalies in controlling the dyspnea.

Stokes-Adams Syndrome, with a Remarkable Delay in the A-V Conduction Time

Dr. W. S. Thayer, Baltimore: The woman on whom the observations were made was 50 or 55 years of age, the mother of several children. She had suffered with attacks of dyspnea for several years. After a series of attacks characterized by intermittent pulse, she became unconscious and the pulse became very slow. When I saw her she had a perfectly regular heart beat, rate 35 per minute. Examination with polygraph indicated that she was suffering from a total bradycardia with the A-V wave 0.7 second in duration. Electrocardiograms were made which upheld the suspicions excited by the polygraphic tracings, namely, that the heart was beating with one auricular to each ventricular contraction, and with the most remarkably prolonged p-r period of 0.68 second. After exercise, the pulse rate fell from 35 to 28 per minute, and by polygraphic tracings the A-V wave was now found to be 0.8 second, and later the A-V wave reached the unprecedented duration of nearly 0.9 second. It was desired to ascertain the effect of atropin, but the patient was hypersensitive to the drug, and its use had to be abandoned. There have been a number of similar seizures since, but the patient has utterly refused to allow further study. This case at first glance would seem to be one of ordinary heart block with dissociation; but on study it was found to be one of total bradycardia. So far as known, there is on record no other case with such a long pause between the auricular and ventricular contractions. Two polygraphic tracings taken six weeks apart with identical curves could hardly be a coincidence.

Present Status of the Electrocardiographic Method in Clinical Medicine

Dr. Alfred E. Cohn, New York: The electrocardiographic method has been used in clinical medicine for only ten years. It records the electrical discharges of the heart during its activity. The form of the curve remains constant through the greater portion of life. Any change in it represents a change in the heart or in its position. The normal curve depends on the orderly performance of four chief functions: (1) On the orderly spread of electrically excited states; (2) on the orderly sequence of auricles and ventricles; (3) on the orderly coordination of the muscular mass of each pair of cavities; (4) on the usual disposition and volume of the muscular mass of each pair of cavities. The abnormal electrocardiogram depends on a disturbance of one or more of these functions. Under the first head are grouped both auricular and ventricular extrasystoles, paroxysms of tachycardia, and changes in the T wave; under the second head, heart-blocks of various kinds; under the third head, the split P wave when there is auricular asynchronism in mitral stenosis, auricular fibrillation and flutter, ventricular asynchronism, and ventricular fibrillation; under the fourth head, the changes due to hypertrophy and dilatation and dextrocardia.

DISCUSSION OF SYMPOSIUM

Dr. L. F. Barker, Baltimore: The papers show very clearly the revolution in our ideas concerning the pathology of the circulatory apparatus. Electrocardiography is a method of investigation which has been so illuminating as almost to render the phlebogram and cardiogram merely historical. The arrhythmias by this method of study have been cleared up; the heart blocks are now well understood because of information derived from it; we have come also to understand auricular fibrillation—the 'delirium cordis" of older writers. By the method we have come to understand also that condition known as auricular flutter, the senile tachycardia, and we have had elucidated the controlling influence of digitalis on it. The electrocardiograph owes its greatest value perhaps to the fact that any unusual curve recorded by it from the human heart may be reproduced experimentally in animals, and thus our ideas may be cleared by demonstrable facts and we no longer need to depend on theory.

DR. JAMES B. HERRICK, Chicago: I wish to ask Dr. Cohn if there is any definite explanation of inversion of the T wave in Leads 1 and 2? There may often be seen such an inversion in various pathologic conditions, and its occurrence is usually regarded as of bad prognostic omen; why should this be so? I wish to ask also if the split P wave, seen in cases of mitral stenosis, might not at times be seen in curves from normal hearts? May it not be due to asynchronism of the ventricles?

DR. ALFRED E. COHN, New York: The T wave is sometimes inverted in Leads 1 and 2 without necessarily being very significant; but it is seen so regularly in so many very serious lesions that it is usually regarded as a bad prognostic sign. It may not invariably be a bad sign, however, because it may appear in a tracing from a case in which, if many tracings were taken, the majority would not show the inversion.

SYMPOSIUM ON THE DUODENUM

Physiology and Pathology of Duodenal Mucous Membrane

DR. THOMAS R. BROWN, Baltimore: The various problems which must be solved in studying the mucosa of the duodenum may be inferred by considering the events that here go on, depending on the simultaneous presence of three juices, all necessary and all secured by intricate reflex secretion. The extreme complexity of the physical and chemical events going on makes the problem important and difficult. Atony and spasm of the duodenum may both be functional. The hypothetic secretory function of the duodenum is explanatory of the stormy symptoms seen in high intestinal obstruction. The probable immediate cause of duodenal ulcer is the digestive action on the mucosa of trypsin and other proteolytic ferments; but what accident befalls the mucosa to account for this invasion? This has not been demonstrated. Hyperacidity may account for the accident or the action of some vagatonin in psychoneurotic individuals; or some infectious process may underly the event.

Use of the Duodenal Tube for Diagnosis and Treatment

DR. FRANKLIN W. WHITE, Boston: The clinical use of the duodenal tube (introduced by Einhorn and by Gross in 1909-1910) has proved its value in a limited field. I used the tube in eighty-six cases, in sixty-six for diagnosis; in twenty for treatment. A fluoroscopic study of the technic of the introduction of the duodenal tube showed that by placing the fasting patient successively in simple postures, the tube may be introduced into the duodenum within half an hour in a majority of cases in which organic stenosis is not present. Spasm of the pylorus, and atonic and hook-shaped stomachs may delay the tube. A heavy (Gross) tube tip enters the duodenum more rapidly than a light (Einhorn) tube tip. A small tube No. 8 French with a heavy tip of at least 100 grains' weight (Palefski) is best of all for diagnostic work. It is not difficult to tell the position of the end of the tube. It is as safe as an ordinary stomach tube.

In diagnosis, examination of the duodenal contents was most useful in diseases of the pancreas and in cases of chronic jaundice. It is the only method of directly obtaining the secretions of the pancreas and liver. There is considerable normal variation in the pancreatic ferments; only absence or marked diminution has much value in diagnosis. Examination of the feces in some cases was almost equally valuable and simpler; in others the examination of the duodenal contents was much more valuable. In treatment the duodenal tube (Einhorn) was useful in a limited group of cases of peptic ulcer. (It was used only in cases without organic obstruction and in cases resisting ordinary medical treatment.) It may be used to improve the patient's condition before operation, in ptosis and atony with delay in emptying the stomach and vomiting, and it has considerable value in cases of persistent vomiting of nervous and toxic type. Here an unusually long tube is desirable to prevent regurgitation into the stomach. It was used in two cases of cancer of the esophagus (stomach feeding). Almost every case was improved by duodenal feeding, and in a considerable number the symptoms stopped. It is superior to rectal feeding, as patients keep their weight or gain. A vacuum bottle as reservoir and the Murphy drop method is preferred to a syringe for introducing food.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

May, XXXVI, No. 5, pp. 201-266

1 Diagnosis of Cerebral Tumor. L. Archambault, Albany.
2 Pathology of Brain Tumors. W. D. Ayer, Albany.
3 Treatment of Brain Tumors. D. Baker, Albany.

American Journal of Insanity, Baltimore

April, LXXI, No. 4, pp. 685-839

4 *Two Cases of Typhoid with Permanent Memory Defect. D. K. Henderson, Baltimore.
5 Psychic Factors in Mental Disorder. M. A. Harrington, White Plains, N. Y.
6 *Thymus and Pituitary in Dementia Praecox. S. D. W. Ludlum and E. P. Corson-White, Philadelphia.
7 *So-Called Mixed States and Atypical Forms of Manic-Depressive Insanity. H. D. Singer, Kankakee, Ill.
8 Behavior Chart in Mental Diseases. E. J. Kempf, Baltimore.
9 *Colloidal Gold and Other Tests Applied to Spinal Fluid in Psychiatry. P. G. Weston, I. A. Darling and P. B. Newcomb, Warren, Pa.

4. **Typhoid with Permanent Memory Defect.**—One of Henderson's patients had typhoid in 1910, followed by an indifferent placid state, with outbreaks of irritability, and a marked persistent memory reduction for recent events. The other patient had typhoid in 1903, followed by a marked defect in memory for recent events, which has been persistent, and followed later by an unstable, variable, emotional condition with vague ideas of persecution.

6. **Thymus and Pituitary in Dementia Praecox.**—In a group of cases of dementia praecox examined by Ludlum and Corson-White, Abderhalden reactions were obtained in some instances to testicle and pancreas; and in others to testicle and thyroid; while in still others no reaction could be secured. In the individuals that gave the reactions to testicle and pancreas, there were observed physiologic symptoms of the same type as those found in animals from which the thymus had been removed. In examining the blood of animals whose thymus had been removed, the same reactions were obtained as in the cases of a certain group of patients, indicating that in this group there exists a disease entity. With regard to the pituitary, there were a considerable number of cases with the symptoms of dyspituitarism that improved with pituitary extract. There were also a group of cases of hyperpituitarism that improved with the opposite organic extract, which is the Brown-Séquard fluid.

From a comparatively large number of examinations in cases of pregnancy, cancer, sarcoma, mental disease and experimental animals (examinations carefully repeated and doubly controlled), the authors feel that the Abderhalden reaction is specific; that is, that it represents a definite specific phenomenon. Whatever the ultimate explanation of the phenomenon may be, whether as Abderhalden suggests, it is due to the presence of a specific protective ferment, or, as Bronfenbrenner and Schwartz suggest, that it is an autodigestion of the serum by the specific removal of a normal inhibiting substance, probably the antitrypsin allowing the normal protease to act—it is the expression of a specific phenomenon.

7. **Forms of Manic-Depressive Insanity.**—The essence of the manic-depressive reactions, according to Singer, is the occurrence of some appropriate affective attitude of the organism as a whole which is of purposeful character, abnormal because of its severity and duration and because there is no apparent external cause of its adoption. The so-called mixed states and atypical forms are not mixtures simply of certain traits, but represent affective oscillations colored by peculiarities in the make-up of the individual patient. Such modes of adjustment must be carefully studied and weighed in rendering a prognosis in any individual case.

9. **Tests Applied to Spinal Fluid in Psychiatry.**—This report is based on a study of 198 individuals suffering from different psychoses. In all 239 separate punctures and examinations of the spinal fluid, which, in addition to the "goldsol" test, were also subjected to the scrutiny of the Wassermann reaction, estimation of the globulin content by the Noguchi butyric acid method, cell count and volumetric approximation of albumin. In the cases (3) diagnosed clinically as cerebrospinal syphilis the Wassermann reaction on the spinal fluid was always positive and the colloidal gold test showed a reaction in the paretic zone. In paresis (34 cases) the colloidal gold test was always found positive in cases in which the spinal fluid showed a similar reaction to the Wassermann test, in addition to which one instance is noted in which the fluid Wassermann was negative, but a reaction in the luetic zone was obtained by the gold solution. In dementia praecox (98 cases), manic-depressive insanity (25 cases), arteriosclerotic dementia (17 cases), and epilepsy (12 cases), there was no positive Wassermann reactions on the fluid, and likewise no response to the gold solution in the typical "paretic zone." However, the latter reagent did furnish, in 8 cases of the 152 examined, a reaction within the minor limits of the "luetic zone."

In the unclassified psychoses (9 cases), the colloidal gold and the Wassermann reactions on the fluid ran a parallel course, except in one case, which showed a negative response to the Wassermann test on the fluid, but gave a gold reaction in the "paretic zone." This instance is clinically a possible case of paresis. The opinion is given by the authors that the colloidal gold reaction forms a useful adjuvant to the Wassermann, is apparently as reliable, and, in some instances, by reason of positive response in the absence of the Wassermann in clinically luetic cases, has seemed to point toward the possible appearance of a later positive Wassermann in the suspected individuals.

Annals of Ophthalmology, St. Louis

April, XXIV, No. 2, pp. 217-442

10 Question of Spontaneous Sympathizing Inflammation. J. Meller, Vienna.
11 Report of Series of Fifteen Hundred Cases of Errors of Refraction and Brief Analytic Consideration of Symptoms Presented. J. R. Newcomb, Indianapolis.
12 Case of Alternating Transient Monocular Blindness Ending in Complete Loss of Vision in Left Eye. H. M. Langdon, Philadelphia.
13 Resumé of Trachoma Bodies as Etiologic Factor in Trachoma and in So-Called Inclusion Blennorrhea. F. W. Alter and W. O. Bonser, Toledo.
14 Routine Refraction Problems. H. Woods, Baltimore.
15 Smith Intracapsular Operation: Answer to F. B. Tiffany. F. E. Auten, Belleville, Ill.

Annals of Surgery, Philadelphia

May, LXI, No. 5, pp. 513-640

16 Blastomycosis; Report of Four Cases. F. E. McKenty and D. Morgan, Montreal, Canada.
17 *Operative Treatment of Arterial Thrombosis and Embolism; Report of Three Cases. F. T. Stewart, Philadelphia.
18 *Gallstones. J. C. Hubbard and A. R. Kimpton, Boston.
19 Surgical Treatment of Gastrocoloptosis. J. Douglas, New York.
20 *Rôle of Gastro-Enterostomy in Treatment of Ulcers. F. Martin and A. H. Carroll, Baltimore.
21 Pathogenesis of Umbilical Hernia. A. V. Moschcowitz, New York.
22 *Cystic Dilatation of Vermiform Appendix; Report of Case. O. L. Castle, Kansas City, Mo.
23 Pylephlebitis Complicating Appendicitis; Report of Three Cases. E. A. Babler, St. Louis.
24 *New Method of Lateral Anastomosis of Blood Vessels and Operation for Cure of Arteriovenous Aneurysm. J. S. Horsley, Richmond, Va.
25 *Tongue-Depressor Gastro-Enterostomy Clamp. C. L. Gibson, New York.
26 *Prevention of Keloids in Scars by Underlining of Incisions with Strips of Fascia Lata. L. Freeman, Denver.
27 Rupture of Biceps Flexor Cubiti; Report of Eight Cases. E. G. Alexander, Philadelphia.
28 *Usefulness of Ventral Decubitus in Some Leg Amputations. R. Finochietto, Buenos Aires, Argentina.

17. **Operative Treatment of Arterial Thrombosis and Embolism.**—In one case cited by Stewart a diagnosis was made of an embolus in the abdominal aorta at the origin of the left common iliac artery. Pulsation of the abdominal aorta could be made out by palpation. Pulsation could not be felt in the external iliacs, or in any of the arteries in the lower limbs. The right foot was black and shriveled, the lower two-thirds of the right leg purplish, with loosening of the epidermis and bleb formation. The left leg was painful, tender, useless, warm (because of the presence of external heat) and pale, except over an indurated area, about 2 inches in diameter, just external to the middle of the tibia, in which the skin was reddened and edematous.

The abdomen was opened in the median line below the umbilicus, the small intestine segregated in the right side of the abdomen, and the sigmoid pressed to the left. The iliacs were motionless; the aorta pulsated to a point near the bifurcation, at which point it was hard. The posterior parietal peritoneum was incised, and a silk ligature passed beneath the aorta at a point 1½ inches above the bifurcation. This ligature was not tied, but it was placed so that it could be tied in the event of bleeding that could not be controlled otherwise. While an assistant compressed the aorta with a finger, a longitudinal incision extending upward from the bifurcation for three-fourths of an inch, was made in the anterior wall of the aorta. After removing, in several pieces, a dark friable clot, evidently of recent formation, which lay beneath the incision and protruded into the left common iliac artery, the embolus itself was uncovered, and easily forced through the wound by pressure, from below upward, on the right common iliac artery into the orifice of which the lower end of the embolus had been driven. There were apparently no firm adhesions between the obstructing mass and the intima, which appeared to be smooth and undamaged.

After milking several more small fragments of clot from the left common iliac, pressure on the aorta was relaxed for an instant, in order to wash any remaining coagula through the wound, and the aorta closed with a continuous through-and-through silk suture, over which a second continuous suture, including the outer coats only, were inserted. The posterior parietal peritoneum was drawn together with a continuous suture of catgut, the abdominal wall with interrupted stitches of silkworm-gut. The operation, which lasted about an hour, had little immediate effect on the patient's general condition. On the third day after the operation death occurred from cardiac weakness and pulmonary edema. A necropsy could not be obtained.

18. **Gallstones.**—A study of 400 cases of gallstones entering the surgical wards of the Boston City Hospital in the years 1907 to 1913 (six years) was made by Hubbard and Kimpton. Only such cases were used in this study in which stones were found at operation, 226 cases, 55 males and 182 females. Pain of severe type was practically always the prominent symptom, occurring in 212 cases. The second prominent symptom was vomiting, present in 137 cases, or 62 per cent., varying from mild to severe, persistent and most distressing. Jaundice varying from a yellow discoloration in the eyes to a definite yellow tinge to the whole body is mentioned in 107 cases, or 48 per cent. The site of the stones is of special interest in these cases of jaundice. Of the 107 jaundiced persons 70 had stones in the gallbladder only; 25 had stones in the common duct only or in addition to stones in other portions of the biliary tract; 9 in the cystic duct alone, or in conjunction with stones elsewhere, and in 3 the stones are described as being in the "ducts." Chills occurred only 9 times.

The character of the stools was mentioned in but a few of the cases, in 14 clay or white, in 2 light colored. A mass in the abdomen was present in 49 cases with a questionable mass in 6 additional. Pus was present in the gallbladder in 28 cases. It was found in both contracted and distended bladders. A contracted bladder occurred in connection with a stone in the common duct more frequently than a distended bladder. Cholecystostomy was performed in 177 and cholecystectomy, complete or partial, in 24 cases. Pulmonary complications developed in 14 cases, and in a majority of these caused death. Thirty-one patients died in the hospital as a result, or in spite of operation. The end-results, not including those patients who died in the hospital, have been learned in 91 cases. Seventy-four, or 81 per cent., consider themselves well, cured by the original operation. Of this number, 5 qualify this statement by saying that they still have some indigestion. Four patients are having trouble, not apparently due to gallbladder disease. Three still have attacks of pain, etc., suggestive of gallstones, and one is "not well."

20. **Gastro-Enterostomy in Ulcers.**—According to Martin and Carroll, it can be shown roentgenographically that in man, as well as experimentally in animals, a patent pylorus tends to functionate notwithstanding the presence of a patent stoma; that gastric contents will leave via the stoma, and at first in large quantity, but that it is not a fact that the egress continues rapidly later.

22. **Cystic Dilatation of Vermiform Appendix.**—This is a rare form of appendix disease, available postmortem records showing it to be present in about 0.2 per cent. of cases. It is usually symptomless and benign, but may, on rupture, produce pseudomyxoma peritonei in every way similar to that of ovarian cyst origin.

24. Abstracted in The Journal, Jan. 23, 1915, p. 365.

25. **Tongue-Depressor Gastro-Enterostomy Clamp.**—Gibson uses three small pieces of wood, the ordinary wooden tongue-depressors, bound together by any suitable method, such as a strong artery clamp, or, if more convenient, a sterile rubber band. The tongue-depressors might be replaced by strips of cigar boxes. Both in experimental and clinical work, it has proved much more satisfactory than the Roosevelt, Bartlett and other clamps used for this purpose. Gibson has found it particularly satisfactory in doing a gastro-enterostomy, when it is desired to release the clamp in putting in the last mucous muscular suture and the final peritoneal suture. Removing the rubber band allowed the tongue-depressors to fall apart without further manipulation. By this method injury to the viscera is less likely to be produced. Two gastro-enterostomies and one entero-anastomosis have been successfully done with the aid of these clamps.

26. **Prevention of Keloids in Scars.**—A young woman consulted Freeman regarding the removal of a disfiguring scar resulting from an operation for tuberculous lymph nodes of the left side of the neck. It extended from the mastoid to the center of the clavicle and was as wide and as thick as one's thumb. It was fiery red and formed a conspicuous and mortifying deformity, as it stretched across the neck like a great "flying buttress." A strip of fascia lata was procured from the thigh, long enough to reach from the mastoid almost to the clavicle, with the head in the median position, and about as broad as one's finger. After thoroughly extirpating the scar and undermining the edges of the wound, the strip was spread lengthwise beneath the incision. It was then fastened to the under surface of the skin and fascia on one side, and to the deeper tissues on the other side, with a few sutures of fine catgut, thus permitting the union above it of the integument and cervical fascia without danger of displacement. Primary union was obtained. Posterior to the longer scar described above was a much shorter one, which was also hypertrophied and red. This was likewise excised, but for various reasons was not underlined with fascia lata, although the deep fascia was carefully sutured. Hence this second scar became a sort of "control experiment."

At the end of over twelve months the results of the procedure are as follows: When an attempt is made to incline the head to the opposite side, this movement is checked by the strip of fascia lata, which stands out plainly beneath the skin. This does not inconvenience the patient, because the same check was produced to even a greater extent by the false keloid. There is absolutely no pull on the new scar, which is soft and freely movable on the surface of the underlying graft. There is little tendency to hypertrophy or redness, except near the clavicle, to which the fascial strip did not quite extend. In other words, the new scar is relatively inconspicuous and "normal." The smaller posterior scar, the "control experiment," which was not underlined, has become markedly red and elevated, in spite of its being relieved from a certain amount of strain by the anterior fascial graft; while the longitudinal scar on the thigh from which the graft was obtained is fiery red and almost as broad and thick as one's little finger. In a second case the disfigurement was not so great as in the preceding case, but it was sufficient to justify an energetic attempt at its removal. The result, at the end of four months, is eminently satisfactory, the scar being small, soft, not red and freely movable over the fascial graft.

28. **Amputations of Leg.**—In cases of amputation through the upper two-thirds of the leg, Finochietto says, examinations, operations and dressings should be done while the patient is in the ventral decubitus. All classes of anesthetics can be administered and will be perfectly tolerated in that position. While in this position flaps of any form can be raised and one may employ at will subperiosteal, periosteal, anaperiosteal and osteoplastic methods. Any method of amputation can be performed more easily while the patient is in the ventral decubitus. Equally well, in the same position, any condition which involves all or a greater part of the leg circumference, as ulcer, lymphangiomata, cirsoid aneurysms, etc., may be examined and operated.

Boston Medical and Surgical Journal

May 20, CLXXII, No. 20, pp. 731-768

29 "Do's" and "Don'ts" in Diagnosis of Early Pulmonary Tuberculosis in Adults and Children. J. B. Hawes, 2d, Boston.
30 Study of Two Hundred and Sixty Cases of Acute Appendicitis at Massachusetts General Hospital. L. Davis, Boston.
31 Obesity and Malnutrition. W. E. Preble, Boston.
32 Relation of Alcohol to Accidents. W. J. Brickley, Boston.
33 Acidosis in Children. A. A. Howard, Boston.
34 Parenteral Administration of Horse Serum in Cases of Horse Asthma. J. L. Goodale, Boston.
35 Gangrenous Epiploic Appendix; Report of Case. A. R. Kimpton, Boston.

California State Journal of Medicine, San Francisco

May, XIII, No. 5, pp. 169-210

36 Diagnosis of Gastro-Intestinal Disease. C. W. Lippman, San Francisco.
37 General Paresis and Its Relation to Syphilis, with Report of Pathologist of Napa State Hospital. A. W. Hoisholt, Napa.
38 Laboratory Report, Napa State Hospital. W. T. Harrison, Napa.
39 Harrison Antinarcotic Act. F. Lengfeld, San Francisco.
40 Functional Defects of Thyroid in Relation to Neurotic Conditions. H. W. Wright, San Francisco.
41 Successful Methods of Attack on Malaria in California. W. B. Herms, San Francisco.
42 Drug Anaphylaxis. A. J. Scott, Jr., Los Angeles.
43 Report of Three Years' Rectal Work at County Hospital. W. H. Kiger, Los Angeles.
44 Consideration of Relative Merits of Albee Operation and Hibbs Operation. E. H. Smith, San Francisco.
45 Water-Borne Typhoid Epidemic. W. A. Sawyer, Berkeley.

Canadian Medical Association Journal, Toronto

May, V, No. 5, pp. 373-468

46 Artificial Pneumothorax in Treatment of Tuberculosis. C. D. Parfitt and D. W. Crombie, Gravenhurst.
47 *Uterine Hemorrhage at and after Menopause. F. A. Cleland, Toronto.
48 *Some Sequelae of Antityphoid Inoculation. W. Boyd, Winnipeg, Manitoba.
49 Juvenile Delinquency. G. S. Mundie, Victoria, B. C.

47. **Uterine Hemorrhage at and After Menopause.**—Cleland summarizes his paper as follows: The menopause is probably induced by retrogressive changes in the ovary. The

menopause is subsidence of the flow of blood, an increase in the flow is always pathologic. The menopause may occur during a period of thirty years or more. A local examination should always be made in cases in which hemorrhage occurs near the menopause. Professional and public education regarding the early symptoms of cancer of the uterus is necessary. In severe cases of uterine hemorrhage which have resisted all medicinal treatment and in which the patient is becoming progressively worse, hysterectomy is indicated. There seems to be no connection between hyperplasia and hypertrophy of the endometrium and hemorrhage from the uterus. At or near the menopause the curet is of little service except for diagnostic purposes. No palliative measures should be tried till malignant disease is excluded. General conditions may be the cause of hemorrhage, and syphilis should not be overlooked. Organotherapy is of little value in hemorrhage at or after the menopause. Blood transfusion is a possibility in treatment of severe cases,.

48. **Sequelae of Antityphoid Inoculation.**—The effects of prophylactic inoculation were observed by Boyd on the 18,000 men composing the North Midland Division of the Territorial Force. In quite a number of cases definite evidence was observed of a considerable increase of intestinal activity. In one case inoculation bore a close causal relationship to an attack of typhoid. In four cases jaundice developed a few days after inoculation. In two cases inoculation was closely followed by an attack of pneumonia. Three cases of severe urticaria came under Boyd's observation. In one of these the color was of a remarkably vivid hue; it was as if the patient had been steeped in some anilin dye, such as eosin. In no case did the condition last for more than forty-eight hours. None of the cases showed any rise of temperature. The author concludes that in the great majority of cases inoculation is a harmless procedure, involving at the most a certain degree of temporary discomfort, and those constitutional symptoms comprised under the term "inoculation fever." In a few cases the sequelae are of a more serious character, and in some instances inoculation may be followed by such conditions as pneumonia, appendicitis (two cases) and severe gastro-intestinal catarrh.

Iowa State Medical Society Journal, Des Moines

April, V, No. 4, pp. 129-168

50 Myocarditis. H. C. Eschbach, Albia.
51 Shock. C. B. Taylor, What Cheer.
52 Cholelithiasis, Like Appendicitis Should be Treated by Early Operation. J. L. Augustine, Ladora.
53 Laboratory Observations. C. W. McClure, Iowa City.
54 Defensive Ferments of Abderhalden. M. W. Hall, Des Moines.
55 Heliotherapy in Treatment of Tuberculosis. J. W. Kime, Fort Dodge.
56 Some Problems in Obstetrics. J. C. Powers, Hampton.

May, No. 5, pp. 169-214

57 Leukoplakia Buccalis. R. Levy, Denver.
58 Ophthalmology, Otology and Rhinolaryngology. J. C. Beck, Chicago.
59 Colon Bacillus Infection. M. Emmert, Atlantic.
60 Conservation of Middle Aged. J. F. Herrick, Ottumwa.
61 Use of Pituitary Extract in Labor. N. Noble, Des Moines.
62 Diagnostic Technic in Pulmonary Tuberculosis. J. W. Shuman, Sioux City.
63 Trichiniasis; Report of Epidemic. C. W. McClure, Iowa City, and M. Ware, New Liberty.
64 Accidental Trauma to Abdominal Viscera, Requiring Immediate Section. C. E. Conn, Battle Creek.
65 Therapeutics. F. N. Mead, Cedar Falls.

Journal of Abnormal Psychology, Boston

April-May, X, No. 1, pp. 1-79

66 Hysteria as Weapon in Marital Conflicts. A. Myerson, Taunton.
67 Analysis of Nightmare. R. Bellamy, Emory, Va.
68 Analysis of Single Dream as Means of Unearthing Genesis of Psychopathic Affections. M. Solomon, Chicago.
69 Act of Everyday Life Treated as Pretended Dream and Interpreted by Psychanalysis. R. Bellamy, Emory, Va.
70 Freud and His School. A. W. Van Renterghem, Amsterdam.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, VI, No. 5, pp. 533-621

71 Influence of Temperature and Concentration on Quantitative Reaction of Heart to Ouabain. T. Sollmann, W. L. Mendenhall and J. L. Stingel, Cleveland.
72 Signal-Magnet Controller. C. S. Chase and B. H. Schlomovitz, Iowa City, Iowa.
73 *Toxicity of Rattlesnake Serum and Bile with Note on Effect of Bile on Toxicity of Venom. W. H. Welker and J. Marshall, Philadelphia.
74 *Some Vasomotor Reactions of Liver, with Special Reference to Presence of Vasomotor Nerves to Portal Vein. C. W. Edmunds, Ann Arbor, Mich.
75 *Demonstration by Use of Arterial Rings of Inhibitory Action of Certain Drugs on Vasoconstriction Produced by Epinephrin. D. I. Macht, Baltimore.

73. **Toxicity of Rattlesnake Serum.**—According to Welker and Marshall, rattlesnake venom injected intramuscularly into the same rattlesnake or into another rattlesnake is not toxic. Injected intraperitoneally into guinea-pigs and intramuscularly into pigeons, it appears to be less toxic than rabbit serum. Captivity of the rattlesnake seems to produce an abnormal condition of the blood that is unfavorable to blood clotting. The bile of the rattlesnake is not highly toxic for pigeons, nor has it any antitoxic action for rattlesnake venom.

74. **Some Vasomotor Reactions of Liver.**—It was noted by Edmunds that under the action of epinephrin the liver volume changes are not the same in all animals, even in those of the same species. In the dog the usual effect of the injection of epinephrin is a constriction of the liver which continues during the time that the general blood pressure is reaching its maximum and returning to normal again. In the cat the usual type encountered is an increase in volume dependent on the increased efficiency of the heart. Variations from both types are frequently seen. When the hepatic artery is tied, all the types resolve into one. In this type there is no marked change in volume during the early portion of the curve, but later there is a marked increase. This increase is the result of the backing back of the blood in the vena cava, and it is therefore entirely passive. Injected into the intact animal epinephrin gives no proof of the presence of vasomotor nerves in the portal vein. These, however, can be demonstrated by the perfusion of the portal system with epinephrin solutions and by the action of these solutions on isolated pieces of portal vein, and finally by the study of the volume changes in the liver in relation to the vena cava and portal pressures when the splanchnic nerves are stimulated.

75. **Action of Certain Drugs on Vasoconstriction.**—Macht found that Dale's vasomotor paradox can be demonstrated in vitro or outside the body in a simple and effective manner, by the use of excised arteries. One or more rings of a freshly excised artery are suspended in a small glass chamber filled with warm Locke's solution at the temperature of 37 C. (98.6 F.), through which a constant stream of oxygen is kept bubbling. One end of the preparation is fixed to the bottom of the chamber, while the other is connected to the short arm of a lever, the long arm carrying a point for recording on a very slowly moving kymograph. The glass chamber is immersed in a water bath or a jacket for regulating the temperature. The temperature and flow of oxygen must be kept very constant. When the artery is excised it is in a state of permanent contracture or "tonus," which tonus must be overcome before its reaction to drugs can be studied. This is done by a method of so-called "weighting," originally introduced by O. B. Meyer, and was described by Voegtlin and Macht in their work on the coronary and pulmonary arteries.

When the tonus of the artery has been overcome and the lever is writing at a constant level, small quantities of ergotoxin solution are introduced into the small chamber. The effect of this drug is usually to cause a moderate but long lasting contraction of the arterial rings. If now the Locke solution is quickly removed, and fresh solution of epinephrin in warm Locke (37 C.) is introduced in its place, or if some strong solution of epinephrin is mixed directly with the original Locke solution, instead of the ordinary sharp rise due to epinephrin, as seen in normal rings, no constriction occurs, and indeed very often there is a relaxation noted. Macht says that the original contraction of the arterial ring is due to the direct action of the ergotoxin on the artery. While causing a constriction of the ring, the ergotoxin at the same time paralyzes the motor endings in the vessel wall, giving an exactly similar paradoxical reaction to epinephrin as that observed in blood-pressure experiments in the intact animal.

Kansas Medical Society Journal, Topeka

April, XV, No. 4, pp. 105-138

76 Uncinaria Disease. L. E. Mock, St. John.
77 Surgery of Gallbladder and Ducts. R. C. Dugan, Ottawa.
78 Social End of Clinical Tour in France. P. S. Mitchell, Iola.
79 Thyroid Gland. J. Sundwall, Lawrence.

Kentucky Medical Journal, Bowling Green

April, XIII, No. 5, pp. 167-212

80 Old Time Physician. C. T. Grayson, Washington, D. C.
81 Chloroform and Ether Anesthesia. C. E. Vidt, Russell.
82 Case of Rabies. B. J. Neary, Waverly.
83 Duties of Health Officer. J. B. Scholl, Jabez.
84 Case of Tetanus. B. J. Bolin, Glenfork.
85 Transposition of Viscera. L. L. Solomon, Louisville.
86 Petrosal Abscess. D. S. Reynolds, Louisville.
87 Calomel, Its Uses and Abuses. W. E. Allen, Shelbyville.
88 Postoperative Insanity with Special Reference to Ophthalmic Cases. A. O. Pfingst, Louisville.
89 Sciatic Neuritis, from Personal Experience. M. C. Kash, Salyersville.
90 Syphilis of Lung; Report of Case. C. G. Hoffman, Louisville.

Maine Medical Association Journal, Portland

May, V, No. 10, pp. 363-394

91 Salvarsan. H. K. Tuttle, Boston.
92 Surgery of Kidney; Report of Case. J. Sturgis, Auburn.

Medical Record, New York

May 22, LXXXVII, No. 21, pp. 841-882

93 Freud from Surgeon's Viewpoint. R. T. Morris, New York.
94 *Diagnosis and Treatment of Cancer of Stomach. J. Meyers, Albany.
95 Case of Conjugal Syphilis. E. L. Hunt, New York.
96 Alopecias. L. B. Mount, Albany.
97 Rôle of Physician in Industrial Medical Insurance. A. C. Burnham, New York.
98 Hematuria. C. J. Drueck, Chicago.
99 *Homograde Thermometer. F. E. Aspinwall, La Grange, Ky.

94. **Diagnosis and Treatment of Cancer of Stomach.**—Meyers suggests that if there are any antibodies or special resistance passed from the parents to the children, the offspring may benefit in the way of immunity to disease, and thus the race is guarded. This is not so in cancer, for even if the host of cancer does elaborate any antibodies against his or her disease, yet through age or shortened life he or she does not transmit them to any descendants. And it may be for this reason that cancer is on the increase because we have more people in the world today only a few of whom can possibly be the sons or daughters of cancer fathers or mothers. If the cancer patients could produce or bear children there might come a time, perhaps very distant, when the human being would develop more resistance against cancer than he now possesses. As it is now, cancer cases serve no general purpose of immunization. In the face of a situation so serious and baffling it would seem advisable to Meyers to urge men and women with cancer to produce children before they die. If they do not marry it would be well for the state to sanction and provide for marriage so that all cancer material could be employed to produce children who might be immune through transmitted resistance.

99. **Homograde Thermometer.**—In the Homograde thermometer the normal blood heat at or near the surface of the body in which sensation mostly exists is the unit of value, and every degree in the scale equals 1 per cent. of that unit. The scale begins with O at the freezing point, 270 represents the boiling point of water, and 100 the normal blood heat within the radius of sensation. In the Homograde scale 100 represents the human normal and all variations therefrom are expressed in percentages of that normal; 95 H. expresses 95 per cent. of that heat, a 5 per cent. deficiency; 105 H. expresses a 5 per cent. increase of heat, a moderate and usually not dangerous fever, while 110 H. expresses a 10 per cent. increase of heat, which is high and proportionately dangerous. To change Fahrenheit figures to Homograde find the exact number of degrees above or below freezing and increase that number one-half. The result will be the Homograde equivalent. Throughout the Homograde scale there are exactly 3 degrees instead of 2 degrees in the Fahrenheit scale. The shorter degrees of the Homograde thermometer necessitate a less frequent use of fractions.

Military Surgeon, Chicago

May, XXXVI, No. 5, pp. 405-504

100 How Can Hospital Ship Best Serve Needs of Fleet? T. W. Raison, U. S. Navy.
101 Leprosy. G. W. McCoy, U. S. P. H. Service.
102 Is Volunteer Medical Officer of To-Day a Soldier? G. M. Blech, Illinois National Guard.
103 How Can Full Complement of Qualified Physicians for Medical Corps of Navy be Best Achieved and Maintained? J. D. Manchester, U. S. Navy.
104 Two Non-Military Tours of Duty of Indiana Ambulance Company No. 1. A. G. Chittick, Indiana National Guard.

Missouri State Medical Association Journal

May, XII, No. 5, pp. 197-248

105 Insidious Mastoiditis. J. B. Shapleigh, St. Louis.
106 Otitic Brain Abscess. W. E. Sauer, St. Louis.
107 Functional Testing in Ear Disease. V. W. McCarty, Kansas City.
108 Surgical Lesions as Etiologic Factors in Gastric Symptoms. C. Smith, St. Louis.
109 Chronic Focal Infection of Nose, Throat and Ear as Cause of General Infection. W. M. Reed, Kansas City.
110 Functions of Board of Censors. S. P. Child, Kansas City.
111 Does Insanity Increase? Review of First Two Thousand Cases at State Hospital No. 4, Farmington. F. L. Long, Farmington.
112 Poliomyelitis; Report of Cases. D. E. Shy, Knob Noster.

New Orleans Medical and Surgical Journal

April, LXVII, No. 10, pp. 823-894

113 Some of Modern Problems in Exophthalmic Goiter. T. E. Satterthwaite, New York.
114 Importance of Diagnosis of Early Syphilis. W. H. Harris, New Orleans.
115 *Experiences with Swift-Ellis Treatment. S. C. Jamison, New Orleans.
116 Headaches. L. Sexton, New Orleans.

115. **Experiences with Swift-Ellis Treatment.**—It is Jamison's belief that (1) improvement is likely to follow the Swift-Ellis treatment, if the patient's spinal fluid shows pathologic changes; (2) this treatment is hopeless unless the fluid does show such changes; (3) the danger of this treatment is not great, and has been exaggerated in certain reports.

New York Medical Journal

May 22, CI, No. 21, pp. 1033-1088

117 Duty of Medical Profession in Regard to Street Conditions. B. Sachs, New York.
118 One Hundred Years Ago. J. M. Swan, Rochester.
119 *Whooping Cough. P. Luttinger, New York.
120 Optic Neuritis Concurrent with Whooping Cough. E. S. Clouting, Philadelphia.
121 Forceps. S. S. Arluck and J. Girsdansky, New York.
122 Rectal Polyp in Childhood. H. Neuhof, New York.
123 One Thousand Submucous Resections of Nasal Septum. L. Fisher, Philadelphia.
124 Military Surgeon on Firing Line. P. J. H. Farrell, Chicago.
125 *Case of Infantile Facial Eczema Cured by Reduction of Carbohydrates. C. N. Sturtevant, Philadelphia.
126 Congenital Diverticulum of Urinary Bladder in Infants and Children. J. M. Wallfield, New York.
127 Water as Physiologic Tonic. A. C. Geyser, New York.

119. **Whooping Cough.**—Pertussis stock vaccines as prepared by the New York Health Department Bureau of Laboratories, according to Luttinger, seem to have a prophylactic value when given in high doses. In the treatment of pertussis, these vaccines seem to have shortened the duration and severity of the paroxysmal stage; the average duration of the whoop being twenty-five days, compared to forty days of those treated with drugs.

125. **Eczema Cured by Reduction of Carbohydrates.**—Concluding that the sugar must be at fault in his case, Sturtevant omitted all carbohydrates from the formula. Improvement was immediate; the next day the temperature fell, and daily the eczema could be seen to improve. In six days the face was entirely clear. The baby lost about 8 ounces in weight, however, in the six days. The addition of a half dram of dextramaltose to each feeding (6 ounces every fourth hour) was followed by a regain of the weight lost, but no more. After a few days of stationary weight, the sugar was increased suddenly to 5 per cent. There was an immediate

return of the eczema, more mucus in the stools, and a slight but persistent elevation of temperature again, Sturtevant omitted all sugar. As before, all symptoms disappeared in a few days. Beginning now with small additions of sugar each few days, gradually developing an increased tolerance for this food element, he succeeded in getting small gains in weight and discharged the patient apparently cured. Observation in the dispensary and social service department recorded continued improvement.

Northwest Medicine, Seattle

May, VII, No. 5, pp. 137-168

128 Technic of Pus-Tube Operations. E. F. Tucker, Portland, Ore.
129 Wandering Spleen. J. H. O'Shea, Spokane.
130 Volvulus of Ileum. O. B. Wight, Portland, Ore.
131 *Effusion into Bowel Wall Simulating Appendicitis. H. W. Riggs, Vancouver, B. C.
132 Renal Diagnosis in Relation to Renal Surgery. G. S. Whiteside, Portland, Ore.
133 Ectopic Pregnancy. C. B. Ford, Seattle.
134 Artery Blocking Versus Nerve Blocking in Prevention of Shock. P. W. Willis, Seattle.
135 Operation for Cleft-Palate. D. K. Thyng, Tacoma.
136 As Surgical Assistant is Anesthetist Sufficiently Trained? S. F. Wiltsie, Seattle.

131. **Effusion into Bowel Wall.**—The four cases cited by Riggs in their history resemble the symptoms of appendix trouble more or less acute. The central abdominal pain, shifting to the right lower quadrant, with tenderness on pressure over this area, the slight rigidity of the right rectus, vomiting, temperature ranging from 99 to 103, make the clinical picture of inflammation of the appendix. The doughy mass felt in several cases, gave the impression of a possible abscess. The pathology is more or less uncertain. The site of the lesion is constant, occurring at the lower few inches of the ileum and sometimes involving a contiguous portion of the cecum. It is to be noted that this area is supplied by the ileocolic artery. The congestion varied from a slight reddening to a dark red color. There was great thickening of the bowel wall and of the mesentery. This is not of the edematous type which pits on pressure, but has more of the brawny feel of an inflammatory infiltration. The area affected is usually quite sharply defined and does not shade gradually to the normal. In one case there were petechial hemorrhages in the mucous membrane of the appendix, while in another there was apparently blood in the stool. A bacteriologic examination in the only appendix involved gave only *B. coli* and pyocyaneus.

Riggs believes that this may be regarded as a manifestation of a toxemic condition which has for its outward sign erythema, urticaria, angioneurotic edema and purpura. The abdominal pain, the vomiting, the temperature and the site of the lesion correspond to the description given by Henoch of abdominal purpura. In the cases Riggs reports, the question of hemorrhage is almost negligible. One had petechial hemorrhages, another presumably had blood in the stool, but there was no marked hemorrhage from any part of the alimentary tract. The other case showed absolutely no sign whatever of a purpuric nature.

Ohio State Medical Journal, Columbus

May, XI, No. 5, pp. 293-360

137 Cerebellar Surgery. S. P. Kramer, Cincinnati.
138 Would it Be Expedient to Eliminate Alcohol from Pharmacopeia? S. B. McGavran, Cadiz.
139 Intestinal Stasis. E. A. Murbach, Archbold.
140 New Plan of Collecting Vital Statistics in Ohio; How Physician Can Aid in Health Campaign. F. G. Boudreau, Columbus.
141 Importance of Eyesight and Its Conservation in Movement for Prevention of Accidents. M. D. Stevenson, Akron.
142 Value of Tuberculin in Treatment of Pulmonary Tuberculosis. S. A. Douglass, Mount Vernon.

Ophthalmology, Seattle

April, XI, No. 3, pp. 437-639

143 Importance of Eyesight and Its Conservation in Movement for Prevention of Accidents. M. D. Stevenson, Akron, Ohio.
144 Significance of Increased Tension of Eyeball. S. D. Risley, Philadelphia.
145 Treatment of Glaucoma Simplex. F. E. Cheney, Boston.
146 West Intranasal Partial Resection of Tear Sac for Dacryocystitis, Dacryostenosis, Phlegmon or Epiphora. J. S. Clark, Freeport, Ill.
147 Eye Symptoms of Hypophyseal Diseases. H. V. Würdemann, Seattle.
148 Hyoscin and Morphin as Preliminary to Local Anesthetics. L. M. Hurd, New York.
149 Case of Expulsive Retrochoroidal Hemorrhage Following Cataract Extraction. H. M. Starkey, Rockford, Ill.
150 Subperiosteal Blood Cyst (?) of Orbit Simulating Osteosarcoma. R. S. Lamb, Washington, D. C.
151 Sudden Changes of Refraction in Diabetes. C. Zimmermann, Milwaukee, Wis.
152 Causes of Second Sight. S. B. Muncaster, Washington, D. C.
153 Strabismus. F. Valk, New York.
154 Pupillary Phenomenon. U. S. Bird, Tampa, Fla.
155 Chronic Prostatitis Probable Factor in Iritis. P. H. Dernehl, Milwaukee, Wis.
156 Economics of Eye, Ear, Nose and Throat, Together with Economics of Entire Body (Physical Economics). (To be continued.) E. E. Holt, Portland, Me.
157 Early Diagnosis of Cancer. W. H. B. Aikins, Toronto.

Public Health Journal, Toronto

May, VI, No. 5, pp. 203-250

158 German Immigration and Anglo-Saxon. P. H. Bryce, Ottawa.
159 Can Insurance Experience Be Applied to Lengthen Life? A. Hunter.
160 Recent Australian Epidemic of Smallpox. W. E. Home, Victoria, B. C.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

May, XII, No. 137, pp. 129-160

1 Montessori Education for Children with Defective Sight. L. Paton.
2 Case of Infantile Hemiplegia Affecting Left Half of Body, with Considerable Under-Development of Left Upper Extremity; Jacksonian Convulsions Affecting Paralyzed Upper Extremity; Petit Mal. E. G. Fearnsides.
3 Suppurative Parotitis Following Pneumonia. J. P. Parkinson.
4 *Case of Myelitis in Child. H. T. Ashby.

4. **Myelitis in Child.**—The patient was a boy, aged 5½ years, who first complained of vague pains in the chest. The parents also noticed that he was slowly losing the use of his legs. The family history was good, and previous to the onset of the illness he had always been healthy. He had not had any of the infectious fevers. When sent by his physician there was complete paralysis of both legs and back, with anesthesia extending from the toes up to a line drawn round the chest just below the nipples. The knee jerks were much exaggerated, and there was a Babinski sign present on both sides. The abdominal reflexes were absent. There was no optic neuritis and no impairment of the mental power. The upper extremities and neck were unaffected. The urine was normal, but continually dribbling away, and there was also incontinence of feces during his stay in the hospital, and up to the time of death he complained of vague pains in the chest and in the upper abdomen, but his general condition remained the same till just before he died.

There was only a slight rise of temperature on and off throughout the illness, but just before death he had hyperpyrexia. He had a small bed-sore on admission to the hospital, which, however, soon healed. The heart and lungs were normal. After three weeks, the anesthesia, which had remained at the same level, began to increase upward and he became rapidly worse, no doubt due to the vital centers becoming affected. There was no improvement with potassium iodid, no family history of syphilis, and the Wassermann test was negative. There was no spinal caries nor injury, and the case was quite unlike anterior poliomyelitis or a spinal growth. The disease seemed to spread up the cord quickly at first, became stationary for a time, and then advanced till the vital centers were affected.

British Medical Journal, London

May 1, I, No. 2835, pp. 749-788

5 Post-Graduate Teaching of Surgery. R. Morison.
6 Epidemic Cerebrospinal Meningitis. A. G. Gullan.
7 Mixed Typhoid + Paratyphoid *A* + Paratyphoid *B* Vaccine. A. Castellani.
8 Comparison between some Physiologic and Pathologic Conditions. J. Barcroft.
9 Wound Infections; Some Methods in Their Treatment. A. E. Wright.

May 8, I, No. 2836, pp. 789-832

10 Sterilization of Water by Chlorin. J. J. H. Nelson.
11 Birth Palsy. H. Platt.
12 *Decortication for Traumatic Empyema with Complete Collapse of Lung. W. G. Spencer.
13 Insects and War; Mosquito. A. E. Shipley.
14 Curve of Epidemic. J. Brownlee.
15 Foreign Body (Glass-Headed Pin) Impacted at Bifurcation of Trachea Extracted by Aid of Bronchoscope. S. Jones.

12. **Decortication for Traumatic Empyema.**—For recent cases of empyema the essential thing, Spencer says, is to sponge the cavity free from fibrin and pus, and then by the finger, aided by sponges on holders, to seize portions of the capsule with forceps in order to free the lung. This can safely be done if the patient is given nitrous oxid gas with oxygen or air; as the lung is being freed a little ether will induce cough with which the lung will expand. The difficulty in children may be the occurrence of bronchopneumonia with the empyema. Then, after the pleural cavity has been cleared, the lung may be found free, but it cannot expand owing to consolidation. If the base of the lung is then drawn into the wound and fixed there by suture with a tube beside it leading into the cavity, healing will soon occur.

Journal of Laryngology, Rhinology and Otology, London

May, XXX, No. 5, pp. 177-208

16 Bilateral Lesion of Auditory Center. T. Guthrie.
17 What Factor Determines Ear to Be First Attacked in Chronic Middle-Ear Catarrh? M. Yearsley.

Lancet, London

May 1, I, No. 4783, pp. 897-948

18 Wound Infections; Some Methods in Their Treatment. A. E. Wright.
19 *Ileus Duplex. (Inflammatory Enterocolic Ileus.) W. S. Handley.
20 Roentgenoscopy with Third French Army. A. W. Mayo-Robson.
21 Blackwater Fever. R. W. Burkitt.
22 *Theory of Telephone Probe. R. G. Canti.
23 Significance of Nuclear Variations of Neutrophil Leukocytes (Arneth Counts) in West Africa. J. W. S. Macfie.
24 Facial Plastic Surgery, Laryngology and Stomatology in French Military Hospitals. J. D. Grant.

May 8, I, No. 4784, pp. 949-1008

25 *Arteriovenous Aneurysm. W. Osler.
26 *Etiology of Rickets. L. Findlay.
27 Treatment of Wounds in War. W. W. Cheyne.
28 Treatment of Wounded on Board H. M. S. "Tiger" During Naval Action of January Twenty-Four. J. C. Kelly.
29 Epidemic Cerebrospinal Meningitis. F. E. Batten.
30 Psychology of Traumatic Amblyopia Following Explosion of Shells. H. S. Pemberton.
31 Case of Cerebrospinal Meningitis. H. J. Alford.

19. **Ileus Duplex.**—Peritonitis of the serous surface of the intestine, when it reaches a certain degree, is accompanied by complete paralysis of the involved segment of intestine. General peritonitis means general paralysis of the intestine, and is accordingly not amenable to surgical treatment. But if the peritonitis is partial though unlimited by any adhesion barrier, certain segments only of the intestine are paralyzed. If the paralyzed segments can be thrown out of circuit by surgical measures, recovery is in such cases possible and even likely. Unfortunately, in these cases the surgeon's hand has been paralyzed by a facile assumption, based on the general abdominal distention, that general peritonitis is present. The observations Handley has made in the operating room and the successful results of his cases show conclusively that septic ileus of pelvic origin is not accompanied by general peritonitis when it first comes under observation, and that it is perfectly amenable to surgical treatment, subject to a clear recognition of the fact that two segments of the bowel are involved, and that accordingly two obstructions require to be circumvented.

22. **Theory of Telephone Probe.**—This instrument was designed for the location of bullets and other foreign metallic matter within the human body. It consists essentially of a telephone receiver, one terminal of which is electrically connected with the skin of the patient by means of a flat electrode covered with wet cloth, while the other terminal is connected with a metallic probe. A dry battery may or may not be inserted in series with the telephone. The probe is introduced along the track of the bullet, and on contact being made with the latter a sound is produced in the telephone. The instrument is of real value only when the ordinary methods of detection are of no avail and when the Roentgen ray, if obtainable, is deceptive.

25. **Arteriovenous Aneurysm.**—Osler agrees with the conclusion arrived at by Subbotich, senior surgeon of the Belgrade State Hospital, from his experience in the Balkan War, "that arteriovenous aneurysms should be operated on, as they offer small prospect of spontaneous cure, although they often remain stationary for a long time and cause relatively little trouble." It is suggested that the question is largely one of situation and technic. As the cases reported by him indicate, even with the lesion of the axillary and subclavian vessels good health may be maintained for years without any serious trouble, but there are always risks, particularly of thrombus formation in the distended veins, and even after thirty or forty years serious trouble may arise. Urgency is greater in the case of the lower limbs, and it would be much safer to operate before the venous engorgement becomes excessive. Osler emphasizes the fact that up-to-date vascular surgery cannot be done in a hospital in which the younger surgeons have not full opportunities to experiment on animals, because the extraordinarily delicate technic of vascular suturing is an art acquired only after much practice.

26. **Etiology of Rickets.**—Examination of his results, Findlay says, shows very definitely that the disease is proportionate to the amount of air space allowed to the child, and that as this diminishes in amount the incidence of the disease rapidly increases. Probably the want of sufficient fresh air acts in a twofold manner. In the first place, the absence of pure air will act as a sedative and tend to make the child less inclined for exercise. If a child is confined to the house it is more easily tired, is less active, and wishes to go to bed earlier, so that the living in overcrowded rooms acts just in an opposite manner to taking the child out. Again, it is not unlikely that in overcrowded houses the amount of work that devolves on the mother will hinder her from attending properly to the child.

Closely allied to the above is the amount of time that the child spends in the open air. In the larger proportion of the cases the mother confesses to not taking the child out at all. These two factors, confinement and deficient fresh air, act by making the child more lethargic and less inclined to exercise itself, although it is quite possible that deficient oxygenation of the blood itself helps toward the production of the special rachitic metabolic error. The results which Findlay has obtained in the treatment of the disease with massage, passive movement and electricity are, he believes, strongly confirmatory of the view that deficient exercise engenders the condition. So far as his experience goes, no variety of dietetic or medicinal treatment brings about the same rapid and complete cure. The children are encouraged to walk, and as yet Findlay has not seen any bad effects follow such practice.

In view of the effect of deficient exercise on the calcium retention, the influence of confinement in the production of human and experimental rickets, and the frequency with which the disease is encountered in overcrowded houses, Findlay considered it not unlikely that rickets would be exceedingly prevalent in those parts of the world in which the people were confined in badly ventilated houses and from which sunlight was absent for long periods of the year. After a fairly extensive search through the diaries and journals of travelers in Iceland, Greenland and Alaska, parts of the world in which the winters are long and dark and in which the houses are badly ventilated and devoid of all sanitary conveniences, houses in which many people are huddled together for weeks at a time, he has not come across a single suggestion that rickets is ever encountered.

Practitioner, London

May, XCIV, No. 5, pp. 631-774

32 Treatment of Cerebrospinal Meningitis (Spotted Fever). W. Whitla.
33 Cerebrospinal Fever. T. J. Horder.
34 Fraudulent and Neurasthenic Cases. J. Collie.
35 Aphasia and Its Treatment. S. A. K. Wilson.
36 Recent Work in Ophthalmology. L. V. Cargill.
37 *Duodenum in Diabetes Mellitus. N. Mutch.

38 Treatment of Some Septicemias by Vaccines. G. T. Western.
39 Recent Work on Clinical Pathology. W. D. Emery.
40 *Cancer of Breast; Analysis of One Hundred Cases. R. Howard.
41 Recent Work in Urinary Surgery. J. W. Thomson-Walker.
42 Fatal Gastro-Intestinal Hemorrhage in Newborn. S. Sheill.

37. **Duodenum in Diabetes Mellitus.**—In nine consecutive patients with severe diabetes mellitus observed by Mutch, the mean vertical length of the duodenum was 3⅓ vertebra, the extremes being 3 and 3½ inches. Considering adults only, the average length was 4⅘ inches, and the extremes 4½ and 5½ inches, respectively. These figures represent a very great enlargement of the organ; in fact, one patient's duodenum was twice as long as that of a healthy adult and was increased in caliber also, and on examination after death, the walls were seen to share the same change, being thick and fleshy, and of a somewhat milky appearance. Mutch says that the same alterations in structure can be traced in the upper portions of the jejunum.

This enlargement is also invariably associated with ileal or colonic stasis, and in some patients delay is so extreme, and the consequent modification of, the lower bowel so advanced, that there is no doubt in Mutch's mind but that alimentary stasis preceded the onset of diabetes; as, for example, in the case of one patient whose duodenum showed strong antiperistaltic movements. The duodenal dilatation of such patients might reasonably be ascribed to the factors which produce this abnormality in simple intestinal stasis. In the majority of cases, however, the increase in size of the upper part of the small intestine is the predominant change in the alnimentary canal, while lower bowel delay and duodenal regurgitation, although present, are not sufficiently pronounced to account for the enlargement. Fecal accumulation is evidently a common concomitant of diabetes mellitus, but not the sole determining factor, although it may be a predisposing cause. That ileal stasis plays an important part in the disease, Mutch believes, is clearly shown by an analysis he made in which the patients are classified according to the severity of their acidosis. The intensity of the disease was directly proportional to the degree of ileal stasis.

Almost all diabetic patients excrete indoxyl indolacetic acid, and parahydroxyphenylacetic acid in their urine, in varying proportions. In constipated subjects, these substances arise either directly or indirectly from the action of *B. coli* on tryptophan and tyrosin in the small intestines, and the amounts excreted serve as an index of the extent to which the ileum is infected with coliform organisms. In diabetes mellitus, the excretion of these bodies does not bear any obvious relationship to the severity of the disease, from which fact it may be inferred that the gravity of the prognosis in diabetics, with marked ileal delay, depends on some condition other than the coincident infection of the small intestine with coliform organisms. A profuse growth of streptococcus brevis was obtained from the duodenum of a boy with severe diabetes mellitus. The suggested explanation of these phenomena is that chronic duodenitis is the determining factor in the production of diabetes mellitus, and that ileal delay increases the severity of the disease by causing stagnation in the duodenum.

40. **Cancer of Breast.**—Howard's youngest patient was 23. Eighty-six of the patients were over 35 years of age. No definite connection between cancer and marriage, pregnancy or suckling could be made out, but the cases with the shortest histories were, on the whole, seen in the unmarried. Three cases had had abscesses in the breasts some years before the appearance of the cancer. In none of the 100 cases was there a definite history of injury preceding the appearance of the tumor. In sixty-seven of the 100 cases the lump in the breast was discovered by accident. In four cases the patient came for advice for a discharge from the nipple. Three patients suffered from spontaneous fracture, due to secondary cancer in the bones; but all three had been aware of a lump in the breast for some months, and had not sought advice because it was painless. The mortality for the 100 cases is three.

One patient had a goiter and did not recover consciousness. The second, an elderly lady, died quite suddenly after the stitches were removed, and was found on postmortem examination to have extreme fatty degeneration of the heart. The third was a woman of 42, who died suddenly of pulmonary embolism, while having tea with her friends on the seventh day after the operation. Out of the 100 cases, Howard has so far performed eleven operations for recurrence, five locally in the skin, four in the supraclavicular glands and two in the opposite breast. Recurrence in the lungs has been seen five times, the patient first complaining of a dry cough and then developing signs of solidification of the lungs or fluid in the pleura. In one case there was recurrence in the dorsal spine, but Howard has not seen any other case of recurrence in the bones. In two cases recurrence in the skin occurred five years after the original operation, but in one of these the secondary growth was removed, and at the time of writing there is no further recurrence.

Howard's experience of radium is limited to two cases, both of which were inoperable. Neither received the slightest benefit from the treatment. Eight cases of recurrence were treated by Roentgen rays, and temporary improvement has resulted in several of them. In one case a large mass appeared in the opposite breast after removal of one for cancer. This mass had all the clinical characters of a cancer. It completely disappeared under Roentgen-ray treatment, and later the patient died with recurrence in the thorax.

Annales de Médecine, Paris

August, II, No. 2, pp. 107-222

43 *Meningeal Hemorrhage in the Young of the So-Called Spontaneous and Curable Type. V. Cordier, L. Lévy and L. Nové-Josserand.
44 Bronzed Diabetes. N. Fiessinger and L. Laurent.
45 Paroxysmal Tachycardia. E. Donzelot.
46 Xanthoma in Young Man. Coyon and G. Laroche.
47 *The Symptoms Characteristic of Tricuspid Insufficiency; Especially the Ventricular Venous Pulse. C. Esmein.

43. **"Curable" Meningeal Hemorrhage in the Young.**—Cordier discusses the history of the so-called spontaneous and curable hemorrhage in the meninges and its connection with eventual acute hemorrhagic encephalitis, its nature and its outcome. The afterhistory of but few of the patients is known, and a case in his own experience suggests that the prognosis is graver than is generally assumed. In his case a man of 22 was treated at the hospital for supposed acute meningitis following influenza. He had previously been healthy, but his wife was a consumptive. Lumbar puncture released hemorrhagic fluid under high pressure, the symptoms gradually subsided and the patient seemed quite cured. Ten months later meningeal symptoms developed again, extremely severe, and soon fatal. Six illustrations are given of the findings in the brain. They indicated a hemorrhagic encephalitis, and Cordier is convinced that this was directly connected with the first meningeal hemorrhage. The latter must be regarded as the subarachnoid localization of some toxi-infection or latent unrecognized intoxication. This probably is the condition in all such cases hitherto regarded as spontaneous and curable. There is probably always some meningo-encephalitis, but the brain is affected so slightly that the symptoms from this escape attention. Sooner or later, however, the latent toxi-infection may flare up and the point of lessened resistance in the brain bear the brunt of it.

47. **Symptoms of Tricuspid Insufficiency.**—Esmein's long critical study of this subject has demonstrated, he says, that pulsation in the jugular veins does not always accompany tricuspid insufficiency and may, in rare instances, occur without it. Pulsation of the liver is still rarer, but when it is noted tricuspid regurgitation is practically certain.

Archives des Maladies du Cœur, etc., Paris

May, VIII, No. 5, pp. 105-148

48 *The Murmurs in the Arteries as Index of Peripheral Resistance. (Appréciation des résistances périphériques par l'auscultation des souffles artériels.) L. Bard.
49 Slight Degrees of Pulsus Alternans Revealed by Auscultation of the Arteries. L. Bard.

48. **Auscultation of the Arteries.**—Bard has been studying the murmur in an artery as he slightly obstructed it by pres-

sure with a stethoscope. The murmurs vary widely in intensity and in the facility with which they can be induced. Greater precision is attained by partially obstructing the circulation with a sphygmograph cuff and ausculting below with a phonendoscope. Sounds are heard constantly in the artery, varying in intensity and tone; murmurs also are constant, but they are very faint with a normal circulation. With pathologic conditions in the circulation, the murmurs are extremely intense or entirely imperceptible. He says that analyzing the mechanism of the murmur reveals that it is dependent on the emptiness of the peripheral segment of the artery below the constriction. Whether the artery in this segment is empty depends in turn on whether the blood from it has passed on normally into the capillaries or whether the blood has encountered resistance and is thus unable to flow off out of this segment. Other factors may contribute, but this is the instructive factor. The most pronounced murmurs were in certain cases of aortic insufficiency of endocarditic origin, while no murmurs were perceptible in the cases of hypertension of renal origin. Proof that this is the correct explanation of the arterial murmur is afforded by the complete disappearance of the murmurs when the artery is compressed by applying a second cuff below, thus shutting off the escape of the blood into the capillaries. By testing for the murmurs it is possible to keep daily supervision over the course of a primary or secondary affection of the circulatory apparatus, and guide treatment accordingly. In cases of aortic insufficiency of syphilitic aortic origin, no murmurs could be detected.

Archives de Médecine des Enfants, Paris

April, XVIII, No. 4, pp. 181-236

50 *Infantile Scorbutus; Twenty-Six Cases. J. Comby.
51 *Comparative Importance of the Luetin and Wassermann Reactions in Inherited Syphilis. G. Blechmann, M. Delort and A. Tulasne.
52 Icterus Gravis in Children. J. Comby.

50. **Scorbutus in Infants.**—None of the twenty-six infants with scorbutus whose histories Comby relates were breastfed or fed on fresh milk. After from five to ten months' feeding with commercially or home sterilized milk, the children began to grow pale and languid, and finally to cry whenever they were moved. The legs grew weak and as if paralyzed, a kind of pseudoparaplegia from pain. This is the most characteristic sign of incipient scorbutus. Hematomas may develop under the periosteum, but the most frequent symptom is the bleeding from the gums if the child has any teeth. Impress on the family the necessity to refrain from moving the child, especially from trying to make it stand up or walk; no bathing, merely leave the child quiet in bed, with plenty of air. Feed with fresh milk, boiled or not, and give a teaspoonful of orange or fruit juice between feedings. If no other fruit is available, lemon juice diluted and sweetened can be used. For children over a year old, three tablespoonfuls of soft mashed potato may be given during the day.

51. **The Luetin Versus the Wassermann Reaction in Inherited Syphilis.**—Blechmann and his co-workers have applied the luetin test to 230 children, and here report the details in 117 of the cases, including fifty with known or suspected syphilis. The Wassermann test was applied at the same time, and it harmonized much better with the clinical pictures than the luetin reactions, while the technic of the latter is more exacting. On the whole, they assert, a positive luetin reaction should be disregarded when the Wassermann and the clinical picture speak against syphilis. On the other hand, a positive Wassermann obtained on two occasions strongly suggests syphilis. In conclusion, they give tabulated findings with both tests in 274 cases of inherited syphilis as published by various investigators.

Bulletin de l'Académie de Médecine, Paris

April 20, LXXIII, No. 16, pp. 457-482

53 *Training Schools for Crippled Soldiers. (La rééducation professionnelle et la réadaptation au travail des estropiés et des mutilés de la guerre.) E. Mosny.
54 Frost-Bite. (Etude étiologique des froidures.) F. Debat.
55 *Specific Treatment and Prophylaxis of Leishmaniosis. (Bouton d'Orient.) Gachet.

53. **Training Schools for Maimed Soldiers.**—Mosny discusses what has been done in other lands for persons crippled by industrial or other accidents, and then describes the workings of the training school for crippled soldiers that has been at work at Lyons since last December. The men live in the school during their course of training, and the institution in various ways is a model. Another training school to teach horticulture is being organized. These, Mosny states, are the only practical realizations in France to date of aid by professional reeducation and readaptation to remunerative work for those mutilated or crippled in the war. At Lyons the men are taught to use the stump of the arm, without regard to an artificial limb. The prosthesis is to be selected later when the man has learned exactly what is best adapted to serve him in his work. Mosny discusses the general principles and special details of training the maimed to utilize the earning forces they have left, and of finding employment for them. It is a task the country must assume, he adds, and it will require all her ingenuity, all her material and moral forces, and all her goodness of heart. His plan contemplates loans to those who wish to set up a business for themselves.

55. **Oriental Sore.**—Gachet writes from the medical school at Teheran in Persia to extol the curative action of intravenous salvarsan treatment. The sore heals in from three to five weeks after one or two injections, with an interval of one or two weeks. He has found the Leishman bodies in the body of a fly common on dogs, the *Hippobosca canina*, and thinks that this fly has something to do with the transmission of the affection. Camels, horses and dogs are subject to it, but in Persia he has found it only in dogs; fifteen of twenty-one dogs brought in from the street showed the characteristic lesion. Intramuscular salvarsan injections cured them all in from three to five weeks. He adds that the fact that these lesions appear in man only on parts exposed, confirms the theory of fly intermediation in the transmission of the disease.

Revue Médicale de la Suisse Romande, Geneva

April, XXXV, No. 4, pp. 185-240

56 *Purulent Pleurisy as Complication of Artificial Pneumothorax. M. Jacot. Commenced in No. 3. Continued.
57 *Diuresis Induced by Intravenous Injection of Hypertonic Sugar Solutions. G. Turrettini.

56. **Purulent Pleurisy Complicating Induced Pneumothorax.**—Jacot discusses in this instalment the diagnosis, prognosis and treatment of this complication as observed in eight of 108 cases of pulmonary tuberculosis in which pneumothorax was artificially induced at Leysin. Purulent pleurisy is rare in ordinary pulmonary tuberculosis; Leudet found it only in nine of 2,000 consumptives. Some tuberculous focus perforating into the artificial pneumothorax is probably the cause explaining the purulent pleurisy. In treatment, even of the severest forms of purulent pleurisy, repeated puncture followed by insufflation of nitrogen is preferable to pleurotomy. It is free from the dangers of the latter while it maintains the therapeutic action of the induced pneumothorax, and adhesions rarely form with it while the chest wall is not left deformed as after a resection. Adhesions are particularly prone to develop after a lung has been compressed by the pneumothorax, and resection of the chest wall in treatment of the secondary purulent pleurisy is especially liable to bring this about, as it releases the lung from the compression.

57. **Diuresis from Sugar Infusion.**—Turrettini's experience has been unusually favorable with hypertonic sugar solutions in inducing diuresis in severe illness in which the kidneys had practically ceased to act. He gives the details of three cases of acute nephritis from poisoning with mercuric chlorid, two of uremia from nephritis plus atrophy of the kidneys, and one case of probable toxic action from some tuberculous focus elsewhere. The solution of glucose was of 25 or 40 per cent. strength, and the amount injected ranged from 300 to 500 c.c. each time. The condition was desperate in all the six cases, but these strong sugar solutions conquered the anuria in four cases and temporarily improved the kidney functioning in the fifth case before the patient died. Only one injection could be made in one case of severe mercurial poisoning as the vein could not be found.

Archiv für Kinderheilkunde, Stuttgart

LXIV, 1915, Nos. 3-4, pp. 161-320. Last indexed Feb. 27, p. 781

58 *Digestive Disturbances of Older Children and Their Treatment. (Die wichtigsten Verdauungsstörungen des älteren Kindes und ihre Behandlung.) A. Baginsky.
59 *Treatment of Acute Pneumonia in Children. (Die Therapie der Pneumonie als therapeutisches Paradigma.) A. Baginsky.
60 *Stenosis of the Pylorus in Infants. M. K. Forcart.
61 Pathology of Periodical Vomiting with Acetonuria. H. Zade.

58. **Digestive Disturbances in Older Children.**—Baginsky discusses in turn habitual vomiting, nervous anorexia, atony of the stomach, chronic dyspepsia from gastric achylia, achylic diarrhea, and chronic constipation, and the general principles for treatment of each. Chronic constipation is sometimes managed best with a change of scene to supplement the change to an anticonstipation diet. No milk should be allowed until the child has learned to chew its milk instead of drinking it. He abhors purgatives and enemas in these cases except as the very last resort. Nervous anorexia is most common in children fed long on milk who have never learned to chew properly or are too indolent to chew. If they can be roused and trained to masticate they soon acquire an appetite. In some children the senses of taste and smell seem to be abnormally blunt so they thus lack the normal impulse to eat.

With chronic dyspeptic disturbances the main point in treatment is to determine what elements of the food the children are able to digest, and this requires study of the stools and tests of stomach functioning. Some digest fats; others are unable to tolerate them, and so on. Once the individual functional capacity is determined, the physician has the reins in his hands. Every relapse does the greatest harm, because the whole course of treatment has then to be begun over again. The less drugs are used, the better. A child with diarrhea must be kept unconditionally in bed.

59. **Treatment of Pneumonia in Children.**—Baginsky strives to impress on young physicians that the child has generally an intact organism, strong to resist and well equipped against pathologic damage, infections and intoxications. It reacts in the most gratifying way as a rule to slight therapeutic assistance. Strong drugs and methods are not required except extremely rarely, and then only in economical dosage. He reports the details of eight cases of pneumonia in children to serve as guides to therapeutic procedure in general. The main point is to trust Nature's recuperating powers, watching to reenforce her when she is not quite competent alone, always bearing in mind that, for children especially, we must refrain from doing harm by any unnecessary interference.

60. **Stenosis of the Pylorus in Infants.**—Forcart reports 15 cases; there was no nervous taint in the family. Nine of the children were the first born. Delivery had been normal in 11 cases. Only 4 of the children were breast-fed. The first symptoms of the stenosis developed in the second up to the seventh week of life. Thirteen were boy babies and all were much constipated. In only a third of the cases were there any signs of spastic phenomena elsewhere. Lavage of the stomach had no influence on the stenosis. One child died from inanition but 10 left the hospital entirely cured, mostly by the fourth to sixth week, but in some the stenosis kept up for from twelve to twenty weeks. If no benefit is apparent by the sixth week, an operation should be considered. The curves are given for each case, and the necropsy findings in the 3 that succumbed to pneumonia or inanition. No anesthetics or sedatives by the mouth gave any relief. The children's strength was kept up with nutrient enemas.

Berliner klinische Wochenschrift

April 19, LII, No. 16, pp. 393-424

62 Optochin in Treatment of Pneumonia. G. Rosenow and A. Peiper.
63 Improved Technic for Study of the Urine in Acidosis. (Ueber die Reaktion auf Acetessigsäure nach Gerhardt.) L. Lichtwitz.
64 Salvarsannatrium. C. Gutmann.
65 Acute Idiopathic Destructive Tracheobronchitis; Two Cases; Both Fatal. C. Hart.
66 Bile Pleurisy from Transpleural Wound of the Liver; Recovery after Resection of Ribs. v. Gaza.
67 Diathermy in Treatment of War Injuries and War Diseases. A. E. Stein.
68 Tetanus Affecting One Side Only. (Tetanus lateralis.) A. Harf.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 24, XLV, No. 17, pp. 513-542

69 *Nature's Method of Autotrephining and Valve Production to Relieve Steeple Skull. (Ueber die Selbsttrepanation der Natur beim Turmschädel und über das Wesen des Turricephalus.) J. Strebel.
70 *Endemic Goiter. (Weitere epidemiologische Untersuchungen über den endemischen Kropf.) R. Klinger and T. Montigel.

69. **To Save Vision with Steeple Skull.**—Strebel discusses various typical shapes of the skull from premature ossification of the fontanels, especially as they affect vision and hearing. The last few years have brought a realization of the clinical importance of steeple skull, oxycephalus, turricephalus, hypsicephalus and pyrgocephalus, as they do not permit the normal expansion of the growing brain. The eyes protrude on account of the shallowness of the orbit with steeple skull, but the most serious consequence of it is the frequent atrophy of the optic nerve, with both central and peripheral loss of vision. Choked disk first develops, then optic neuritis follows, and atrophy is the next stage. It is a simple descending atrophy, from the mechanical injury of the nerve in the orbit or base of the skull or both, but the condition finally cannot be distinguished from true primary atrophy. In seven of nine such cases in the last four years, Strebel found evidences of this secondary atrophy. It develops usually before the age of 7, and boys are affected more frequently than girls. Headache and cramps have been noticed in some cases but as a rule there are no symptoms on the part of the brain. In two of Strebel's cases there were clonic convulsions with vomiting and loss of consciousness as signs of the chronic pressure on the brain.

In all cases of optic atrophy of dubious origin roentgenoscopy may first give the clue. It reveals further how Nature seeks to relieve in such cases by allowing holes to develop at the points where the skull is worn thin by the pressure. Holes up to 1 cm. long are worn through under the scalp and can be seen in the Roentgen picture. This is a kind of autotrephining, forming safety valves. Nature thus shows how to treat the disturbances from these abnormally shaped skulls. In one such skull there was one quite large hole and eleven small ones. As Strebel was examining this skull, it suddenly dawned on him that these holes explained why this person had had no visual disturbances during life notwithstanding the extreme steeple shape of the skull. Even the roofs of the orbits were worn through.

The roentgenograms in one case described in detail show the internal findings of pronounced steeple skull although externally it was scarcely apparent. In this family there was a history through four generations of congenital dislocation of the lens and congenital heart defects. Premature growing together of the fontanels is responsible for the trouble later; the brain continues to grow but there is not room enough for it in the prematurely solid skull. After blindness has once developed there is no chance for restoration of vision by any measures. But before this stage is reached, decompressive operations are liable to ward it off, making multiple openings where roentgenoscopy shows they are most needed. Family physicians and pediatrists should be on the lookout for a tendency to steeple skull; choked disk from this cause may develop in early childhood, even in the first months of life. The cases of partial turricephalus, without impairment of vision, demonstrate that Nature is able to cure or at least to arrest the tendency unaided. A visit to any blind asylum will usually show typical specimens of steeple skull, and Homer described a skull of this kind in Thersites. There are usually other anomalies in development in these cases, as Homer noticed.

70. **Endemic Goiter.**—Certain families and certain houses in the Swiss towns investigated show a remarkably large number of cases of goiter, but the water supply is the same as that for all their neighbors who are free from goiter. There is no direct inheritance of goiter, but there is unmistakably an inheritance of a predisposition to it when the exogenous factors come into play. Klinger and Montigel urge practitioners to collect family data on goiter.

Medizinische Klinik, Berlin

April 25, XI, No. 17, pp. 469-500

71 *The War and the Nervous System. (Einige allgemeine Bemerkungen über den Krieg und unser Nervensystem.) E. Redlich.
72 *Treatment of Consequences of Concussion of the Brain. (Folgezustände von Gehirnerschütterung.) E. Weber and Neubert.
73 *Hygiene in the Field. P. Kuhn and B. Möllers. Commenced in No. 15.
74 Typhus. (Kriegstyphus.) H. Boral. Commenced in No. 16.
75 Skin and Venereal Diseases in the Army. E. Brinitzer.
76 *Nonalcoholic Drinks from the Standpoint of Public Health. (Die alkoholfreien Ersatzgetränke vom Standpunkte der öffentlichen Gesundheitspflege.) G. Fehsenfeld.
77 *Walking Casts. (Eine billige Gehhülse.) P. Köhler. (Eine ausziehbare Gehgiphose mit Extension bei Fraktur des Oberschenkels.) K. Gerson.
78 Tabes Excludes Military Service. (Tabes und Heeresdienst.) G. Flatau.
79 Professional Secrecy from Medicolegal Standpoint. (Die Beschlagnahme von Krankengeschichten.) R. M. v. Olshausen.

71. **The War and the Nervous System.**—Redlich comments on the milder course of traumatic neuroses in this war in comparison with those in time of peace. The men affected are young and vigorous and the question of an indemnity does not influence the course, but the main factor, he thinks, in the comparatively favorable outcome is the authority of the discipline of military environment. The present experiences confirm Redlich's long held opinion that it is much better in cases of traumatic neuroses for the physician to refrain from paying too much attention to the patient's many disturbances, great and small. The physician's authority should be exerted to stimulate the patient to abstract himself from his troubles. In military circles, in the civilian population and in the refugees from the regions devasted by the war, the nervous system is bearing the strain far better than one would anticipate. Serious nervous affections seem to be restricted almost exclusively to those with a previous nervous taint. The predisposed break down, and melancholia and manic-depressive psychoses are comparatively common among such. Under ordinary circumstances their predisposition might never have been roused from its latent phase. In conclusion Redlich remarks "In future not only medical men and theorists but economists and statesmen will have to pay more attention to eugenics and to the training of the young in character and in physical endurance as well as training the mind. The longing for an everlasting peace will still be a Utopian dream in times to come as in the past. Hence we must do everything to promote efficiency and resisting power in young and old."

72. **Treatment of Concussion of the Brain.**—Weber refers only to cases in which the man was totally unconscious for a time after the injury, usually a fall on the head, or a wound of the skull from a bullet or scrap of shell, without actual lesions of the brain. The disturbances that follow are generally headache, restless sleep, dizziness in climbing stairs or walking fast, and inability to do any muscular work, sweating and having to give up when such is attempted. He has found that in such persons the distribution of the blood during muscular exertion differs from the distribution under normal conditions. The concussion injures the central mechanism for the innervation of the blood vessels; both the peripheral and the cerebral blood vessels are involved. It seems plausible to assume that this is the cause of the headache and other symptoms which follow and persist after concussion of the brain. The headache and dizziness are connected with the damaged central mechanism for the innervation of the vessels, as also the weakness and inability to do muscular work. In treatment, drugs gave no relief but surprising benefit was realized from alternating hot and cold douches. At first the relief is transient, but the improvement becomes permanent under a course of the alternating douches. The relief is striking within half an hour even after one alternating douche and in two or three weeks the improvement becomes a complete cure. The douches are given with hot and cold water for half a minute each (14 and 45 C. or 59 and 113 F.) applying the cold jet a trifle longer than the hot, and ending always with the cold. The cold seems to be the active factor; its effect is merely enhanced by the hot jet. Seven cases are described to illustrate the prompt and reliable curative action of the procedure in these conditions, and Weber also describes how he registers the dilatation of the vessels in the hand or forearm during some strictly localized muscular exertion, such as dorsal and plantar flexion of the foot, hanging free. After concussion of the brain the vessels shrink, instead of becoming distended, during this muscular exertion.

73. **Hygiene in the Field.**—Among the various measures enforced or contemplated to keep the troops in health, Kuhn and Möllers mention that it is the plan to repeat the antityphoid inoculation after a five-month interval. Every tuberculosis suspect is sent home, and careful search is made through the civilian population for consumptives and suspects, and they are isolated in the public hospitals if possible. When this cannot be done, they are left in their homes; the houses are placarded and all intercourse with soldiers is prohibited.

76. **Nonalcoholic Drinks.**—Fehsenfeld has made a special study of the various beverages on the market which contain no alcohol. He has thus tested the output of fourteen firms; their fruit juice and malt beverages are kept from spoiling by pasteurizing, by thickening with sugar or by vacuum distillation. They are nutritious while supplying the mineral salts, etc., urgently needed by the tissues. From every point of view they are desirable except that one tires of them more easily, and that they do not have the same appetizing effect as alcoholic beverages. They are also more liable to adulteration and to the use of harmful preservatives. But since the Freie Vereinigung deutscher Nahrungsmittelchemiker, an association of food chemists, set up standards for such beverages in 1911, a large number of very good alcohol-free wines, beer and sterilized fruit juices have been put on the market. The main thing now is to uproot the tradition that a jolly company must have alcoholic drinks to be a success, and further, to convince the public that the amounts of alcohol which are extremely moderate for one person may be far too much for his neighbor. It must also be impressed on the public that even the "extremely moderate" use of alcohol is not always free from danger.

77. **Walking Casts.**—Köhler and Gerson give illustrated descriptions of inexpensive plaster splints and casts, with strip-iron stirrups, which allow the patients to be up and about. Gerson's cast not only immobilizes but exerts adjustable extension. This is realized when the patient is sitting or standing by overalls fastened to the stirrup and held up by suspenders. The pressure from the overalls on the stirrup and thus on the cast is ample to hold the cast in place and thus keep up the extension for a fractured femur, for instance. The pelvis and hip are not included in the cast; it fits against the tuberosity of the ischium. The cast can be cautiously pulled off at any time for inspection and massage of the limb, and the foot can be massaged and exercised without disturbing the apparatus.

Münchener medizinische Wochenschrift, Munich

April 20, LXII, No. 16, pp. 537-572

80 Sudden Ptosis of Liver from Perforated Gastric Ulcer. (Ein roentgenologisches Phänomen bei perforiertem Magengeschwür.) W. Weiland.
81 Typhoid Bacilli Found Less Frequently in the Blood in Typhoid in the Vaccinated. (Einfluss der Typhusschutzimpfung auf den Nachweis der Typhusbazillen im kreisenden Blut.) H. Hohlweg.
82 The Blood Picture after Vaccination against Typhoid and Cholera. (Das Blutbild bei Typhus- und Choleraschutzimpfung.) H. Lipp.
83 *Excellent Permanent Results of Operative Treatment of Elephantiasic Edema. E. Kondoléon.
84 Hygienic and Medical Notes in Southern Tunis. J. Grober. Commenced in No. 15.
85 Treatment of Skin and Venereal Diseases in the Field. W. Gennerich.
86 *Gunshot Wounds of the Lung. (Lungenschüsse und deren Behandlung durch Punktion und Einlassen von Luft in die Brusthöhle.) H. Ehret and L. Krez.
87 *Bayonet Wounds of the Lung. K. Herrenschneider.
88 *Ligation of Common Carotid after Gunshot Injury. F. Riedinger.
89 Vermin Fumigating Shed. (Die Ungezieferbekämpfung in einem Kriegsgefangenenlager.) L. Schlesinger.
90 Extension with Aid of Varnish. (Extensionsverbände mit dem Heusnerschen Wundfirnis.) O. Fleuster.
91 *Tardy Effects on Nervous System of Wounds in War. (Ueber die durch den Krieg bedingten Folgezustände im Nervensystem.) Saenger. Commenced in No. 15.
92 Hexamethylenamin Should Not Be Given in Typhus. (Zur Behandlung des Fleckfiebers.) F. Levy.

83. **Operative Treatment of Elephantiasis.**—Two years have now elapsed since Kondoleon first excised the deep fascia in the leg to improve conditions in chronic edema with elephantiasis. Several have applied this technic since, including Royster, whose favorable report was published in The Journal, May 30, 1914, p. 1720. Kondoleon has performed the operation on eleven patients, in four cases on both legs. The details and the ultimate outcome in ten cases are given in full. Two of the patients were entirely cured and three materially and permanently improved; two were slightly *improved and in one patient the former condition returned.* The outcome is not known in the other cases. Improvement occurred constantly when the tissues were still comparatively elastic; the failures were only in the very old, chronic cases with tough, hardened soft parts. The complete cures and the essential improvement realized in a considerable proportion of the cases are particularly gratifying, as we previously have had no means to influence this affection. Kondoleon does not describe his technic here, but it was given in The Journal, Sept. 12, 1912, p. 977, from his early report on the subject.

86. **Air Treatment of Gunshot Wounds of the Lung.**—*Ehret says that none died of the 100 soldiers with gunshot* wounds of the lungs he has examined or treated from five to twenty days after their injury. He ascribes this favorable outcome to his practice of puncturing the chest cavity and letting in air. This aids in expelling all secretions, and the pressure of the air tends to prevent bleeding and reduces the tendency to retraction and adhesions which are so common with gunshot wounds of the lungs not treated in this way. Even when the exudation is not enough to require puncture, yet adhesions are warded off better by this puncturing and letting in air. It is possible but not yet definitely settled that *the artificial pneumothorax thus induced may break up adhesions* already formed of recent date. He uses ordinary air and has never had any unpleasant by-effects with the method.

87. **Bayonet Wounds of the Lung.**—Herrenschneider reports a case in which a bayonet had passed through the entire chest, entering the right fourth interspace and emerging near the third thoracic vertebra. After the first day or so the temperature was normal or nearly so and except for a slight cough without expectoration the man suffered no discomfort. The pleural effusion was sterile at first but later an anaerobic bacterium was cultivated from it. Treatment was with absolute repose alone, except that a little codein was given to suppress the slight cough, and in less than six weeks after the injury the man was able to leave for home to complete his convalescence. Such experiences testify that it is not necessary to resect ribs, as some advise in treatment of bayonet wounds of the chest.

88. **Ligation of the Common Carotid.**—Various measures have been proposed to ward off the serious results liable to follow the sudden shutting off of the supply of blood to the brain by ligating the common carotid. Smoler advises slow "strangling" of the artery, shutting off the circulation by stages as it were, and Ceci advises ligating the internal jugular vein at the same time as the artery, thus impeding the escape of the blood from the brain. Riedinger recently had a soldier in his charge who had been shot just below the right mastoid process, the bullet passing out through the floor of the mouth. Serious arterial hemorrhage came on the eighth day and recurred again and again. Riedinger threw two ligatures *around the common carotid and also around the* internal jugular vein. No disturbances on the part of the brain were observed and the wound healed promptly. This experience sustains Ceci's views as to the advisability of ligating the vein at the same time as the artery.

91. **Nervous Affections from Wounds in War.**—Saenger reports a number of interesting cases encountered at Hamburg among soldiers wounded in the head or spinal cord, and discusses a number of special points. This war has shown that concussion or commotion of the spinal cord is liable to arrest temporarily its functioning even when the cord itself was not touched by the bullet. There does not seem to be any special "war neurosis," but pathologic psychic reactions to the stress, both physical and emotional, of the war are common in the predisposed. He deplores Oppenheim's recent revival of the idea of "traumatic neuroses," saying that this conception should be repudiated not only from the scientific but from the practical standpoint on account of the enormous economic burdens it would impose on the state if generally accepted. In conclusion he relates five cases among the civilian population of Hamburg in which emotions connected with the war have led to acute mania or suicide. Numbers of other cases have also occurred, but, on the other hand, he remarks, many persons with unstable mind or nervous system have been steadied and helped by the war. In conclusion he quotes Hindenburg's prophecy: "The victors in this war will be those with the stoutest nerves."

Wiener klinische Wochenschrift, Vienna

April 22, XXVIII, No. 16, pp. 411-434

93 Indirect Gunshot Injury of the Spinal Cord; Three Cases. (Rückenmarkschädigungen durch Wirbelschuss.) E. Gamper. Concluded in No. 17.

94 Animal Charcoal in Research on Vaccines. (Verwendung von Tierkohle bei Vakzineuntersuchungen.) J. Hammerschmidt.

95 Unfavorable Experiences with Vaccine Therapy of Typhoid. (Zur Frage der Typhustherapie mit Besredka-Vakzine.) H. Boral.

96 *Participation of the Kidneys in Relapsing Fever. (Mitbeteiligung der Nieren bei Rückfallfieber.) L. Jarno.

97 *Technic for Cultivating Bacteria from the Stools. (Wirkung des *Petroläthers auf die Bakterien der Typhus-Koligruppe.)* R. H. Jaffé.

98 Sterilization of Clothing with Fumes of Carbon Disulphid. (Neues Entlausungsverfahren.) E. Eckert and A. Fuchs.

96. **Involvement of the Kidneys in Relapsing Fever.**—Jarno remarks that in the accessible literature he has found mention of merely traces of albumin in the urine or hemorrhagic nephritis as the only renal complications of relapsing fever. In his extensive experience at the contagious disease hospital at Ruma, he has found albumin constantly, sometimes in large amounts, and frequently accompanied by granular tube-casts. The findings in 170 cases are tabulated; the albumin appeared in the urine the very first day as a rule and by the second day there was up to 0.5 and 1.5 per thousand and masses of tube-casts. The findings in the urine keep up during the attack but disappear after defervescence, the urine being quite normal by the fourth day. These phenomena recur regularly with each of the relapsing attacks, and the normal urine afterward demonstrates that apparently no serious damage has been done the kidneys. In only one of all his cases have the albuminuria and casts persisted indefinitely since. Hemorrhagic nephritis as a complication was encountered only twice and there was no macroscopic blood. The clinical picture of relapsing fever, including the kidney findings, was favorably influenced by neosalvarsan and to a remarkable extent. As the spirilla are killed off by this drug, the kidneys escape further injury.

97. **Improved Technic for Determination of Typhoid Bacilli in Stools.**—Jaffé expatiates on the superior advantages, the ease, and the reliability of Bierast's benzin method of treating the stools of suspected typhoid carriers. The benzin seems to destroy some substance in the membrane capsule of colon bacilli, and they die off in consequence, while the typhoid and paratyphoid bacilli are not injured by it enough to check their growth. The delay of sixteen hours before the test is conclusive, he says, is a slight drawback which is outweighed by the advantages of the method. The findings in fourteen cases are tabulated. In four cases typhoid bacilli were demonstrated by this means when other methods gave negative results. In the five other positive cases, the typhoid bacilli were in pure culture or there were merely very few colon bacilli in comparison with the luxuriant growth of the former on the ordinary plates. One of the advantages of the technic is that the entire specimen of stool is treated. It is rubbed up with bouillon to a thin suspension. The benzin is then poured on it, as thick as one's thumb, and the glass vessel is corked and vigorously shaken up. Unless the cork is sound and tight, some of the vessel contents might get on the fingers. Bierast himself contracted typhoid, probably in this way, while studying out this technic, and a bacteriologist in a hospital near Vienna has succumbed recently to

typhoid acquired in this way. A rubber cap might be used to cover the top of the bottle, or the benzin might be merely stirred into the suspension. The aim is to expose the colon bacilli to the benzin as thoroughly as possible. The vessel is then set away in a cool place, protected against the light, for sixteen hours. Then one or two drops from the lowest brownish strata are transferred to a series of Drigalski or Endo plates.

Zeitschrift für Urologie, Leipzig

March, IX, No. 3, pp. 81-120

99 *Clinical Importance of the Modern Tests of the Functional Capacity of the Kidneys. (Nierenfunktionsprüfung.) R. Bauer and W. v. Nyiri.

April, No. 4, pp. 121-160

100 *Chronic Painful Nephritis with Apparently Normal Urine; Two Cases. W. Misch.

99. **Comparison of Tests of Kidney Functioning.**—In this communication from the medical clinic at Vienna in charge of Ortner, the detailed findings in the urine with various tests are tabulated, under ten headings, from sixty-eight patients with internal disease, mostly of the kidneys. The elements that make up the Ambard formula are also compared, and the correspondence between the Ambard findings and the clinical picture and course is emphasized. The essential feature and the progress realized with the Ambard method are that no attempt is made to record and compare the intake or elimination of nitrogen. It aims merely to estimate the proportion of urea and of chlorids in the urine and blood at a given moment, and compare the figures. Contradictory findings were never encountered in any of the sixty-eight cases studied; the clinical course and the Ambard findings always harmonized. The figures in the index were within normal range in every case in which the kidneys were sound. For convenience, Bauer classifies nephritis in three groups: glomerular nephritis in a first, second or third stage; nephrosis, alone or associated with glomerular nephritis; and sclerosis, bland or combined with nephritis. The Ambard findings in each group are compared and discussed and the comparatively simple and rapid technic is extolled as well repaying study. (The Ambard formula was described in The Journal, March 7, 1914, p. 813. His "uremic constant" is the constant ratio between the urea in the blood and the square root of the urea in the urine.)

100. **Chronic Painful Nephritis with Apparently Normal Urine.**—The patients were men of 28 and 45. The attacks of pain in the left kidney region in the first case were so severe that decapsulation was done, which put an end completely to the pains. A scrap cut from the kidney showed evidences of chronic parenchymatous nephritis and yet no albumin nor tube-cast had been discovered in the urine. There was a history in this case of an inflammatory affection of this kidney a few months before, but in the second case no pathologic antecedents were known. This patient also was relieved of all pains by decapsulation of the painful kidney. Misch queries whether this painful nephritis without urine findings may not be merely an early stage of nephrolithiasis. Decapsulation seems to answer the purpose completely. A permanent cure was realized by it in these cases and also in a number in the literature to which Misch refers.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 18, XXXVI, No. 31, pp. 481-496

101 *Croup and Tracheotomy. F. Marinelli.

101. **Tracheotomy in Croup.**—Marinelli presents an array of arguments to impress on the general practitioner the value of tracheotomy for stenosis in croup, and the necessity for his familiarizing himself with the technic so that he can apply it in time. He reports twenty-seven cases to demonstrate the advantages of tracheotomy, making the incision with a bistoury, below the "isthmus" of the thyroid, and only barely large enough to admit the cannula. The patient's breathing must be supervised day and night, and the cannula be discarded at the earliest possible moment. He declares that in general practice tracheotomy should be preferred to intubation, for one reason, because it is the best means at our disposal to ward off secondary pneumonia. He advises it in every case in which the usual measures are not followed by evident improvement. General anesthesia is contraindicated as liable to aggravate the postoperative condition.

Policlinico, Rome

April 18, XXII, No. 16, pp. 517-552

102 *Iodin Treatment of Erysipelas. A. Magi.
103 Instrumental Dilatation of Stenosis of the Urethra. (Candelette metalliche a conduttore per dilatazione uretrale.) G. F. De Meo.

April 25, No. 17, pp. 553-588

104 *Pseudotetanus from Diplococcus Sepsis. T. Pontano.
105 Pathogenesis and Prognosis of Pulsus Alternans. G. Galli.

102. **Iodin in Erysipelas.**—Magi relates that in his experience painting the inflamed region abundantly with tincture of iodin had an "actually brillant effect" on the infectious process, especially with enlargement of the lymph glands in the arm following infected wounds of the hands. The lymphangitis subsided almost constantly after once painting with the iodin, and rebellious erysipelas yielded to repeated applications. In the severest cases he supplemented this with antistreptococcus serotherapy. An attack of erysipelas of the face and scalp on the assistant surgeon at the clinic also yielded promptly to the iodin treatment.

104. **Diplococcus Pseudotetanus.**—Pontano's patient was a man of 77 with an acute toxi-infectious general condition plus a neuromuscular syndrome with painful contracture and intentional spasm. The two syndromes had developed simultaneously, everything suggesting a symptomatic tetaniform status from the same cause responsible for the acute fever and general depression. No benefit was derived from quinin or vigorous salicylic medication. A diplococcus was cultivated from the blood, but the cerebrospinal fluid gave negative findings on repeated examination. Transient benefit was derived from a silver salt injected intravenously, but the condition grew progressively worse, with death the twenty-ninth day after entering the hospital. He had had diffuse pains in the limbs and joints for a few days before the fever developed, and one year before had had an attack of pneumonia, but otherwise no pathologic antecedents were known.

Riforma Medica, Naples

April 24, XXXI, No. 17, pp. 449-476

106 *Primary Alcoholic Degeneration of Corpus Callosum. (Morbo di Marchiafava.) P. Guizzetti and G. Tomasinelli.
107 *Cultivation of Tetanus Bacilli from the Blood. G. Sinigaglia.

106. **Primary Alcoholic Degeneration of the Corpus Callosum.**—Guizzetti relates that Marchiafava was the first to call attention to this primary degeneration of the nerve fibers in the corpus callosum and commissure in men with alcoholic psychoses. The clinical picture in this condition is that of a gradually developing feeblemindedness, with perversion or deadening of the moral sense; there may also be tremor and disturbances in speech, etc. Guizzetti reports, with illustrations of the necropsy findings, a case in a man of 55 who had died of pneumonia. The middle stratum of the corpus callosum and middle of the anterior white commissure showed systematized primary degeneration, but not so extensive as in most of the other cases recorded. For the last few years there had been a gradually increasing tendency to loss of memory, failure at times to comprehend what was said to him, inability to attend to matters outside of his regular routine as meter inspector, and for some years he had complained of headaches and occasional dizziness. He was not a very hard drinker, and his mental impairment had not been severe enough to cost him his position. Guizzetti has since reviewed the 13,000 necropsy reports at the institute of pathologic anatomy in his charge but was unable to find any record of a similar primary degeneration of this region, although he found three cases of ischemic softening, one of primary tumor and one of a metastatic tumor at this point.

107. **Tetanus Bacilli in the Blood.**—Sinigaglia discusses what has been published on this subject and compares with it a case from his own practice in which he was able to cultivate tetanus bacilli from the blood. His patient was a boy of 10 who had stepped on a nail, October 11, signs of

tetanus developing on November 9. Cultures were made from the blood November 16, and two microbes developed, one evidently the tetanus bacillus, and causing tetanus in animals inoculated with it. The tetanus bacilli were not numerous in the blood and seemed to sojourn there only temporarily, but still the blood might serve as a vehicle for infection in case of an operation on a patient with tetanus.

Brazil-Medico, Rio de Janeiro

April 8, XXIX, No. 14, pp. 105-112

108 Brazilian Nematelminth Worms. (Revisão dos acantocephalos brazileiros. I. Fam. Gigantorhynchidae Hamann, 1892.) L. Travassos.

109 *Vagotony. J. de Monlevade.

109. **Vagotony.**—Monlevade has been studying in Austregesilo's service the effect of atropin, pilocarpin and epinephrin on the sympathetic and vagus nervous systems, comparing his findings with those that have been reported by other authors as types of pure vagotony and of what he calls "status vagotonicus." The latter is found in connection with various clinical pictures, on which it imprints a special stamp. Neurasthenia, for instance, epilepsy, or hysteria may be accompanied by a confused and vast train of symptoms on the part of the heart, the digestive tract, the respiration or the vasomotor system, all of which are merely the manifestations of this excessive excitability of the vagus nervous system. Among the infectious diseases, tuberculosis stands at the head with vagotonic disturbances from its very inception. Upsets in the ductless gland system are also fields in which vagotony flourishes exceptionally luxuriantly, as in Addison's disease and exophthalmic goiter. Gastric ulcer may develop in some cases with vomiting, hyperchlorhydria and constipation while other cases are free from them. In the first group the status vagotonicus modifies the clinical picture. Six typical cases of this kind are related, with the response to epinephrin and pilocarpin tests. In every case the reaction to epinephrin and to pilocarpin was exactly the reverse; when one was positive the other was negative.

Semana Medica, Buenos Aires

April 8, XXII, No. 14, pp. 441-472

110 Vaccination against Diphtheria. (La vacunacion antidifterica.) D. Thamm.

111 Functional Stomach Disturbances I. (Hiperestenias gastricas primitivas.) T. Martini.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 17, I, No. 16, pp. 1293-1384

112 *The Tuberculosis Problem in the Tropics. J. J. Van Loghem.

113 The Hospital in Ancient and Modern Times. (Het ziekenhuis voorheen en thans.) J. L. C. Wortman.

114 Study of the Normal Carotid Pulse. (Bijdrage tot de kennis van de polskromme. I.) L. Kaiser.

112. **Tuberculosis in the Tropics.**—Van Loghem is chief of the department of tropical hygiene in the Colonial Institute of the Netherlands, and he has been making a special study of tuberculosis in the Dutch East Indies. He compares the general and the tuberculosis mortality, 1900 to 1904, in thirty-two large cities of the world. Amsterdam and Christiania head the first list in Europe with a general mortality of 15.3 per thousand inhabitants. In Asia, Tokyo heads the list with 18.3 per thousand. Calcutta had 39.3; Manila, 46.7; Batavia, 53.2, and Bombay, 71.4 per thousand. The tuberculosis mortality parallels this range to some extent, Amsterdam having 1.52 per thousand; Tunis, 6.91; Bombay, 6.35, and Batavia, 4.09. New York is cited at 2.21 per thousand.

Van Loghem remarks that as we are learning to keep yellow fever and other tropical diseases under control, tuberculosis in the tropical regions is coming in for greater attention. Study of tuberculosis under tropical conditions is liable to throw light on many of its problems elsewhere. As an example of this he points out that bovine tuberculosis in recent years seems to be spreading, and the milk from tuber ous cows is being used by children and adults more than er before, and yet human tuberculosis shows a downward dency everywhere. He regards this as evidence of the identity of bovine and human tuberculosis. The experiences in the tropics sustain this view. For instance, he relates that the stock of cows in the Dutch East Indies is free from tuberculosis. By strict supervision infection from importation of bovine tuberculosis has been warded off, and yet the figures cited show that human tuberculosis is very prevalent. It must have developed without any basis of bovine tuberculosis, as there is none in the islands. These facts settle also the question as to the possible mutation of human into bovine tubercle bacilli, which some have deemed possible. It certainly has not occurred to date in Netherlands India, he affirms. Although human tuberculosis is common, yet the cattle have kept free from it.

Conditions in the tropics throw light further on the influence of infection in childhood on tuberculosis in later life. In the remote interior of the islands, the Pirquet skin tuberculin test has shown that large areas of country are entirely free from tuberculosis. The more intercourse there is with Europeans and Americans on the coast and in the cities, the greater the spreading of tuberculosis to invade the virgin areas from the large centers. In the persons thus attacked for the first time the disease does not behave as in Europeans and Americans who have been immunized to a greater or less extent by infection in childhood. It runs an acute course in young and old alike, very much like the course of tuberculosis in children in the western world. He suggests that it might be well to vaccinate against tuberculosis in these virgin regions, aiming to realize an effect like that realized in Europe and America by the systematic natural vaccination which repeated opportunities for infection confer on the young as they grow up. He remarks that under modern hygiene and control of open tuberculosis, the number of tubercle bacilli in the external world is certainly growing less and less. This suggests that a time is coming when the young will not have the repeated opportunities of the present and past for infection. The young will grow up free from tuberculosis, but, when opportunity for infection does arise, they will be practically virgin soil, like the natives in the interior of tropical islands, and the disease when it attacks them will run the acute course of the nonimmunized. It is possible that Europe may have to face a new invasion of tuberculosis with an acute course and high mortality unless it can be stamped out by vaccination, as smallpox has been rendered harmless in parts of Europe, or unless it can be eradicated like leprosy.

Hospitalstidende, Copenhagen

April 28, LVIII, No. 17, pp. 401-424

115 Advantages of Paraffin with a High Melting Point for Histologic Sections. (Om Indsmeltning i Parafin ved Fremstilling af histologiske Præparater.) O. Thomsen.

116 *Histochemical Basis for Cholesterin Type of Degeneration of Lipoids. (Nogle kritiske Bemærkninger til det histeokemiske Grundlag for Cholesterinsteatosen.) T. E. Thaysen. Commenced in No. 16.

116. **Degeneration of Lipoids.**—Thaysen confines his study of this subject to what he calls cholesterin steatosis, and tells of the various means for its chemical investigation in man and animals, tabulating the results of his own research. He states that they seem to discredit the histochemical bases on which the pathologic anatomists have been building up the theory of cholesterin steatosis.

Ugeskrift for Læger, Copenhagen

April 29, LXXVII, No. 17, pp. 637-682

117 Polydactylism. (Et Tilfælde af Hexadaktyli paa alle 4 Extremiteter.) M. Seedorff.

118 Four Years of Tuberculosis Sanatorium Work. (Nogle Erfaringer om Pleje- og Rekonvalescenthjem for brystsyge.) G. S. Permin.

Correction.—In Abstract 69 in The Journal, May 8, 1915, page 1620, the number of cases of scarlet fever in which serotherapy was applied was incorrectly stated. The tenth line from the bottom should read: Among 28 patients with extremely severe scarlet fever . . . (instead of "280"). Also the fourth line from the bottom should read: In twelve milder cases normal serum was used and one died. (Instead of "none died.")

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THE RATIONAL TREATMENT OF HODGKIN'S DISEASE *

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INTRODUCTORY

A combined pathologic, experimental and clinical study of Hodgkin's disease extending over a period of six years is the basis of this communication. The most efficacious methods of treatment will be presented with sufficient data to justify the various therapeutic procedures held to be indicated. Fischer[1] was unable in 1901 to find a record of a single case in which cure was *permanent*. None has since then been reported in the literature up to the present year. We have been so fortunate as to have seen two recoveries (that is, five years without evidence of the disease) and at present have a small number of patients under observation who are in a very encouraging condition three to six years after beginning treatment. We believe the disease more common than supposed, more protean in its clinical manifestations than is generally accepted, and not of necessity universally fatal.

This is to be regarded as a statement of observations made and an indication of the results attained by the practical application of the lessons drawn from those observations, laboratory and clinical. Although it is not claimed that a satisfactory routine method of treatment has been established, we feel that a single recovery is indeed encouraging and that prolongation of life, reduction of discomfort and the distinct possibility of 10 per cent. of ultimate cures justifies a conviction that our therapeutic principles are to some extent well founded.

DEFINITION

Hodgkin's disease may be tentatively defined as a non-contagious, infectious granulomatous process due to the *Bacillus hodgkini*. Primarily localized at or about a portal of entry, it causes a progressive enlargement of a specific nature in adjacent and remote preexisting lymphoid structures, and early provokes characteristic changes in the blood picture. Once well established, the disease manifests little or no tendency to spontaneous recovery.

ETIOLOGY

A pleomorphic diphtheroid organism, gram-positive, antiformin-fast but not acid-fast, has been grown almost constantly,[2] and usually in pure culture from fresh tissue showing the characteristic pathologic changes in the disease. It has been stained in situ in affected tissue where it may occur in large numbers in an acute process and apparently be the only microorganism present. Subcutaneous inoculation in pure culture into monkeys has provoked a series of changes quite analogous to the disease as manifested in its more acute form in the human. Recovered in pure culture from lesions in a monkey in which the disease had become established, the inoculation of another monkey therewith induced a similar affection as did likewise a subcutaneous transplant of an involved gland from an affected to a normal monkey.[3] Moreover, the monkeys soon after inoculation show changes in their blood pictures identical with those observed in spontaneous human cases. Similarly the subcutaneous injection into a quite normal individual of five, ten and twenty million bacilli of a polyvalent stock Hodgkin's vaccine at intervals of five days has produced within four days of the last injection the blood changes which Dr. Bunting[4] has shown to be an almost constant characteristic of the disease.[5]

Diphtheroid organisms are widely distributed[6] and are being cultivated from a variety of pathologic tissues. Until the identity of the *B. hodgkini* has been determined accurately it will be impossible to fulfil Koch's dicta to the letter, yet from the facts already established it would seem justifiable to assume that the causal relationship of this organism to the disease has been demonstrated.[6]

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* This work has been aided by a grant from the Rockefeller Institute and by the Trustees of the Columbia Hospital in providing clinical facilities.

* This paper has been abbreviated in The Journal by the omission of the case reports. The complete paper appears in the authors' reprints.

[1] Fischer: Deutsch. Ztschr. f. Chir., 1901, xxiv, A, 104.

[2] Negri and Mieremet: Centralbl. f. Bacteriol., 1913, lxvii, 292. Bunting, C. H., and Yates, J. L.: Cultural Results in Hodgkin's Disease, Arch. Int. Med., August, 1913, p. 236. Rosenow, E. C., and Billings, Frank: The Etiology and Treatment of Hodgkin's Disease, The Journal A. M. A., Dec. 13, 1913, p. 2122. Steele: Boston Med. and Surg. Jour., 1914, clxx, 123.

[3] Bunting, C. H., and Yates, J. L.: An Etiologic Study of Hodgkin's Disease, The Journal A. M. A., Nov. 15, 1913, p. 1803; ibid., Feb. 14, 1914, p. 516.

[4] Bunting, C. H.: Bull. Johns Hopkins Hosp., 1911, xxii, 369; ibid., 1914, xxv, 173.

[5] Solely for the benefit of the antivivisectionists be it known that the above mentioned individual was a physician who understood the nature of the experiment.

[6] It has been so long and so widely held that Hodgkin's disease was of an infectious origin that attempts have been made by many investigators to isolate organisms from tissue obtained at operations or post mortem. Cocci were found first (Verdelli: Centralbl. f. Med. Wissensch., 1893, xxxi, 545); later various cocci and bacilli (Brigidi and Peccoli: Ziegler's Beitr., 1894, xvi, 338) leading to a suspicion that a number of bacteria might be causative agents. Delbet isolated a bacillus (Delbet: Compt. rend. Acad. d. sc., 1895, cxx, 1373) which was not described, and was said to have caused characteristic glandular enlargements after intraperitoneal and subcutaneous injections into dogs. Emulsions of glands have been injected into various animals, and if there was not a concomitant tuberculosis the results were quite negative. Thus Longcope produced transient glandular enlargements in monkeys (Longcope: Bull. Univ. of Pennsylvania Med. Dept., 1907-8, xx, 229) which failed to show characteristic pathologic changes. A possible relationship to syphilis has repeatedly been suggested. Spirochetes were said to have been stained in sections of typical glands (White: The Journal A. M. A., Aug. 31, 1907, p. 774) but this has lacked confirmation through a positive Wassermann reaction (Caan: München. med. Wchnschr., 1910, lvii, 1002) has been obtained in cases giving a negative luetic history. As a heritage of the belief that Hodgkin's disease was an atypical tuberculosis, Fraenkel and Much have held that an organism which they obtained with great regularity from various affected tissues by an antiformin method was a granular, nonacid-fast tubercle bacillus. (Fraenkel and Much: Ztschr. f. Hyg. u. Infectionskrankh., 1910, lxvii, 159.) They were unable to obtain a culture of this organism or to reproduce the disease by inoculation of animals with the filtrate which contained it. It is probable that they were dealing with *B. hodgkini*.

Nothing is known of the occurrence of *B. hodgkini* outside the human body. Clinical evidence indicates that it may enter through other portals than those situated in the gastro-intestinal tract. It is at least suggestive in this connection that so-called pseudoleukemia has been described as having occurred in swine;[7] in a horse;[8] in chickens;[9] in dogs,[10] and in sheep.[11] In the last animal the disease is claimed to be infectious and to be transmitted by insects.

GENERAL PATHOLOGY

Since the publication of Dorothy Reed's paper[12] twelve years ago, subsequent pathologic descriptions of the more common types of the lesions have been largely repetitions of her observations. With the realization that Hodgkin's disease is probably less limited in its clinical manifestations than was held at that time, and in the light of present conceptions, other less generally accepted lesions should be included in the category. These variations, however, are quantitative rather than qualitative and no radical additions can be made to Dr. Reed's splendid fundamental contribution to this subject.

For example, we have observed two adults showing clinical and pathologic characteristics of a type of lymphosarcoma who had a positive Hodgkin's blood picture, and from whose excised glands an organism identical with or closely related to the *B. hodgkini* was cultivated. In both the disease was first noticed in an enlargement of inguinal glands. Histologically these glands showed an almost complete obliteration of the normal architecture and a widespread proliferation of the "endotheloid" cells particularly marked in numerous foci which on fresh gross section gave an appearance suggesting miliary tubercles.

A man, aged 64, suffering from chloroma in its most typical advanced form, clinical and pathologic, presented a characteristic blood picture, and mediums on which were implanted pieces of excised glands gave pure cultures of what appeared to be the Hodgkin's organism. Macroscopically the greenish tint was evident in a fresh section; microscopically a proliferation of atypical large lymphoid cells and the presence of occasional "giant" endothelioid cells and numerous accumulations of blood pigment were particularly noticeable.

Still more surprising were the results of observations on a young physician who had for seven years been suffering from periodic attacks of a peculiar type of subcutaneous inflammation associated with pain, fever, delirium, leukocytosis, lymphangitis and lymphadenitis affecting one leg and causing a very gradual enlargement suggesting elephantiasis. His blood picture was that of Hodgkin's disease both between and during attacks. Cultures taken from obviously involved subcutaneous fat and from enlarged popliteal glands developed an apparently characteristic diphtheroid organism. Sections from the fat showed a definite perivascular inflammation, a mononuclear cellular infiltration and fixed tissue proliferation. Those from the glands showed a distortion of architecture, proliferation of endothelioid and lymphoid cells with scattered endothelioid giant cells and with a fine, diffuse, fibroblastic proliferation. A periadenitis of character similar to the perivascular inflammation in the fat was also present. Eosinophilic infiltration was lacking.

The successful cultivations of a similar organism from the spleen pulp after splenectomy in two cases in which a clinical diagnosis of early Banti's disease had been made are very suggestive, particularly since it has been held (Westphal) that there is a purely splenic type of the disease. In these instances the blood picture was not quite positive because of the absence of an increase in the size and number of the platelets. Microscopically there was the usual increase in stroma, destruction of the malpighian corpuscles and excess of the endothelioid cells. The cultivation of a characteristic organism from the glands in a case of lymphatic leukemia by Steele and the observations of the Fraenkel-Much granular bacillus in this disease are suggestive, but only suggestive, of a possible relationship of these diseases and not proof of their identity.

A middle-aged woman with moderately advanced arthritis deformans had, in addition to carious teeth wonderfully masked by most artistic crown work, obviously affected tonsils and enlarged inguinal glands. Cultures made from these glands developed a diphtheroid bacterium in pure culture, a section therefrom showed histologic changes indicative of Hodgkin's disease and virtually conclusive additional evidence was in the changes in her blood picture. As a corroboration of these findings may be cited the observation of another patient suffering from Hodgkin's disease in a subacute form who has had, but only since the affection became well established, recurrent attacks of multiple arthritis apparently attributable to no other infection.

Certain erroneous statements are frequently encountered, quotations from observations made when pathologic and clinical diagnoses differed from present standards. Some have a definite therapeutic significance and should be refuted.

It is incorrectly maintained that the capsules of lymph glands are never penetrated and that the periglandular tissues are therefore not directly invaded by the intraglandular granulomatous process. This capsular penetration is unusual and is only marked when the disease is progressing acutely. It has also been held that there is no periadenitis, hence no matting together of the glands or formation of adhesions to the skin or deeper structures. This too is incorrect. A periadenitis is virtually constant, probably developing from a [illegible] dissemination occurs, indeed virulent [illegible] are to be found in the periglandular tissues. These periglandular tissues, as pointed out by Fischer, are moist, vascular and friable in acute or recent involvements and are more apt to be dry, avascular and firm in the older and more chronic varieties. Thus, without evidence of secondary infection, intimate and dense adhesions to the skin occur and rarely may even lead to ulceration, according to Delbet.[13] The brawny induration of the skin present in several of our cases indicated that certain of the board-like subcutaneous inflammations might be due to the *B. hodgkini*, and this has been already confirmed in a case cited above.

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[7] Gunther: Deutsch. tierarztl. Wchnschr., 1906, xiv, 112. Hodgson: Jour. Comp. Path. and Therap., 1903, xvi, 382.

[8] Bretegnier: Rec. Med. Vet. Paris, 1909, lxxxvi, 156.

[9] Hart: Ztschr. f. Krebsforsch., 1908-9, vii, 485.

[10] M'Fayden: Jour. Comp. Path. and Therap., 1903, xvi, 379.

[11] Selenew: *Folia Haemat.*, 1911, xii, 99.

[12] Reed, Dorothy: Johns Hopkins Hosp. Rep., 1902, x, 133.

[13] Delbet: Semaine méd., 1893, xiii, 430.

Likewise more or less conspicuous and dense adhesions are found between the glands themselves and surrounding deep structures, often leading to an erroneous conclusion that a malignant type of infiltration has been encountered. The fluctuations in the size, consistency and degree of mobility so often noticed in the course of the disease are probably attributable to a large extent to waves of intensity in this periadentitis.

Contrary to a frequently repeated statement, foci of macroscopic softening do occur, without any secondary infection, though but rarely, and then particularly in the more acutely affected glands. When the process is older or more chronic there is a correspondingly increasing sclerosis which virtually becomes complete if life is sufficiently prolonged. Even when there is little to be found microscopically except fibrous tissue the organism can be cultivated with proper technic.

LIVING PATHOLOGY

Since the living pathology of any disease is a foundation for its therapy an attempt will be made to portray that of Hodgkin's disease as we have come to see it through superimposed pathologic and clinical spectacles.

When Wilks gave to Hodgkin's disease an intermediate position between cancer and tuberculosis he did all three an injustice. Hodgkin's disease may be said to possess all of the evil clinical characteristics and none of the virtues of both a malignant neoplasm and a malign infection. By the latter is meant an infectious process in which the balance of power between virulence and resistance is so delicately adjusted that it may be disturbed by factors frequently unrecognizable and usually negligible under other conditions. In the constant struggle for supremacy the powers of resistance ultimately succumb, but only after repeatedly having overcome the temporary advantages gained by relatively or actually increased virulence.

The offensive mechanism may be regarded as both neoplastic and inflammatory *in its effects*, attributing to the former, more particularly, the mechanical or physical injuries and to the latter more especially the toxic or physiologic.

With the establishment of a portal of entry, a lymphangitis partly toxic and in part due to the presence of bacteria marks the first extension of the disease toward the next lymphadenoid station, there to provoke a specific lymphadenitis. Perilymphangitis and perilymphadenitis are significant and constant features in the process. The entire progress of the disease is a repetition of similar steps, now more acute, now less, increasing numerically here by arithmetical there by geometrical progression, almost never constantly but in alternating waves of progression and regression due probably to periods of disproportion between the powers of virulence and resistance, and varying directly with the degree and duration of this inequality, being at times well localized, at others quite general.

Thus may be explained at the one extreme the extension between glands or groups of glands without any notable concomitant reaction, and at the other extreme those characteristic recurrent febrile attacks.

Three stages of the disease may thus roughly be outlined:

Stage 1. Process localized, physical effects slight, physiologic effects usually unnoticed, though a positive blood picture, an expression of toxemia, is already developed.

Stage 2. Considerable dissemination, physical effects more marked but still relatively insignificant, physiologic effects now definite, toxemia and anemia.

Stage 3. Wide dissemination, physical effects pronounced, edema, dysphagia, dyspnea, physiologic effects advanced, toxemia, anemia and cachexia.

Manifestly, in any given case, the variations in extent and intensity of the physical and physiologic effects present diverse problems in diagnosis, therapeusis and prognosis.

Apparently local and general resistance may be estimated to some extent histologically. The end-result so far as local recovery is concerned is fibrous tissue. An index of the general resistance can be found in the blood picture where there seems to be some direct significant relationship between a normal proportion of small lymphocytes and a favorable prognosis.

Sarcomatous metamorphosis in Hodgkin's disease has been described by Yamasaki,[14] Karsner[15] and Symmers.[16] A necropsy in the most acute and extensive case we have seen showed the parietal pleura, visceral pericardium, intercostal and pectoral muscles to be riddled with nodules. Macroscopically the appearance of malignancy was as distinct as was the picture of typical Hodgkin's granulomatous infiltration, microscopically. The possibility of malignant metamorphosis must be admitted, also its improbability, inasmuch as the causative agent is to be found in and to be cultivated from these so-called malignant metastatic lesions.

Confusing complications of secondary infections, other than agonal, occur and may make a certain diagnosis extremely difficult. When tuberculosis is engrafted on an established Hodgkin's process, as not infrequently occurs late in the disease, the histologic diagnosis is simple. Exceptional cases are reported, as cited by Fischer and Dietrich,[17] in which the two diseases were thought to have developed simultaneously. These should present little difficulty of recognition from a pathologic point of view at least. If any such cases have come under our observation they have been unrecognized. The greatest difficulty has been encountered when, apparently, Hodgkin's disease may have been engrafted on an old tuberculous adenitis in which there exists both caseation and secondary acute infection. We have two such cases under treatment. Glands obtained at two operations on bilateral cervical enlargements of one individual showed advanced tuberculosis with much caseation and some less chronic changes that could not with certainty be identified. Cultures give cocci. *B. subtilis* and in one tube a diphtheroid bacillus which could not be isolated. Definite evidence of an acute infection grafted on a Hodgkin's disease has not yet been established in our work.

CLINICAL HISTORY

Heredity and contagion are without apparent significance, though a case cited by Albutt is still quoted as indicative of the latter being a possibility. Unhygienic surroundings may have some influence, particularly deficient personal cleanliness. No age is exempt, and contrary to the usual statement the sexes are about equally affected, though in males the disease is apt to develop in younger individuals.

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[14] Yamasaki: Ztschr. f. Heilk., 1904, xxv, 269.

[15] Karsner, H. T.: A Study of Cases of Hodgkin's Disease and Certain Allied Conditions, Arch. Int. Med., August, 1910, p. 175.

[16] Symmers: New York Med. Jour., 1911, xcii, 971.

[17] Dietrich: Beitr. z. klin. Chir., 1896, xvi, 377.

Almost every conceivable condition supposed to reduce resistance has been suggested repeatedly as a predisposing factor. It is an interesting coincidence that diphtheria has been mentioned but once in the literature to which we have access.[18] Robust young persons are attacked while in apparently excellent health; more often perhaps, careful inquiry will disclose symptoms of some minor affection that will offer a satisfactory explanation for the onset or at least for the entrance of the infection.

The predilection of Hodgkin's disease to manifest itself primarily in an enlargement of the cervical glands led Trosseau to investigate all structures drained by these glands as possible portals of entry for infection. Murchison first directed attention to the tonsils which appear now to be the worst and most constant offenders. Not only may the disease be limited for a time to enlarged tonsils, as in a case reported by Delie,[19] and have a possible origin from a frank tonsillitis (Westphal), but it can affect these structures so slightly as to give no external evidence of abnormality. We have seen typical histologic Hodgkin's changes in tonsils which appeared normal clinically. Locating the disease in the tonsil is not sufficient, as this may be a secondary infection from other sources in the mouth and nasal passages. The possibility of carious teeth being portals of entry was recognized by Gowers. Rosenow has cultivated the *B. hodgkini* from peridental abscesses and sinuses.

In a fatal case with acute ethmoidal sinusitis, Bunting obtained this organism in pure culture from the affected cells. Organisms morphologically identical with those obtained in gland culture were found in smears made from secretions obtained from the upper nasal passages in a case in which the disease was present in the cervical glands. Chronic dacryocystitis, rhinitis, pharyngitis and otitis media are other lesions which have apparently been the starting point of the disease. We have seen two cases in which the portal of entry was certainly intestinal and others in which this was a possibility. In another the disease may have begun in the bronchial glands. Fraenkel and Much believe the infection may take place through the respiratory tract.

Preexisting adenitis has been noted frequently. Peacocke[20] observed the development of Hodgkin's disease in twin boys aged 4, both of whom had had measles complicated by adenitis. Other children in the same family had had measles but without adenitis. Delbet cites a case attributed to Billroth, in which the disease supervened on a lymphangitis and adenitis due to a bee sting. The possibility of this infection being added to a tuberculous adenitis has been mentioned above.

One patient with a primary enlargement of her inguinal glands had a profuse leukorrhea. Smears from the mucus from her cervical canal showed in considerable numbers an organism similar to that obtained in pure culture from an excised gland. Another had a sharp attack of cystitis preceding the onset, which is of greater significance since Fraenkel and Much observed an infiltration of ureter and bladder with Hodkgin's disease that they attributed to renal infection.

Skin lesions are fairly common. Fifteen per cent. of the cases studied by Westphal showed some skin affection and in 10 per cent. a lichen-like eruption preceded the onset. Trousseau's statement, so often repeated, that chronic irritations of the skin and mucous membrane may give access to a Hodgkin's infection, is evidently upheld. The site of the primary glandular enlargement would give a fairly definite regional location of the actual portal of entry.

The course of the disease depends on the relative virulence of the infection. In the acute forms death may result in a few (two to four) months; in the most chronic, life may be prolonged up to five years. A feeling of lassitude may precede recognition of the disease but more often the glandular enlargement is a fortuitous observation when the general health is good, notwithstanding there has been an absorption of sufficient toxin to alter the blood picture. During the early stage while the disease is localized in the primarily affected group of glands there is so little effect on the general health that proper attention is often neither sought nor given when it is sought. In acute cases there is a rapid transition into an intermediate stage where dissemination is manifest, physical and mental depression more constant and anemia, due to a toxic hemolysis, becomes evident. This transition into an intermediate stage in chronic cases is usually gradual and marked rather by the accidental discovery of additional glandular swellings more and more remote from those first affected. Exceptionally, following a period of chronicity there is a sudden explosive dissemination, after which a more acute course is run, suggesting a very rapid diminution in the powers of resistance of the individual. One of the most strikingly characteristic features of the disease, to be seen in the intermediate stage particularly but occurring if less obviously in the others, is the alternating periods of exacerbation and remission in the intensity of the process. During the periods of progression, the conditions manifested by the acute forms are simulated somewhat, there is more effect on the general health, the groups of glands become larger and the individual glands therein less differentiable and movable and a transient sensitiveness may develop. The overlying skin is less movable, may be boggy and even become reddened. These periods are relatively short and escape the notice of unobserving patients, though most all can recall the periods of remission when there is generally a marked diminution in size of the glandular tumors. This decrease in size may be so great and so persistent and so often accompanied by a sense of well-being that any treatment then in vogue, though the same improvement may be entirely spontaneous or follow an intercurrent acute infection, is apt to be considered causative, and another cure for Hodgkin's disease thereby discovered and unfortunately is usually promptly reported. Sooner or later another recrudescence appears, usually more vicious than those preceding, but now uncontrollable by the measures formerly so efficacious, and not infrequently introducing a rapid, final decline. Those later details, however, quite constantly escape publication.

During the intermediate stage extension takes place from one cervical triangle to the other, then to the neighboring axilla, the opposite side of the neck, the mediastinum, the opposite axilla, the spleen, the groins, the liver and retroperitoneal glands, in about that order. When the involvement has become widespread, the effects of increased intoxication and of pressure makes themselves evident in the terminal stage. Here is noted the grave anemia that may simulate the pernicious type, and the marked cachexia and emaciation, the tendency to purpura and to repeated hemorrhages from the mucous membranes due to a deficiency of blood platelets resulting from exhaustion of the bone marrow, febrile attacks, occasionally of the relapsing (Murchison) type, pleural and pericardial effusions, ascites, obstruction to blood and lymph circulation and to respiration. It is during this late stage that miliary tuberculosis so often develops and is unrecognized until revealed at necropsy.

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[18] Westphal: Arch. f. klin. Med., 1893, li, 83.
[19] Delie: Rev. Hebd. de Laryngol., 1908, ii, 499.
[20] Peacocke: Tr. Roy. Acad. Med., Ireland, 1905, xiii, 1.

No description can be given of the nature and progress of the less common types of Hodgkin's disease that are not associated with glandular enlargements nor those varieties that are just beginning to be recognized as such through bacteriologic and hematologic methods.

DIAGNOSIS

It is impossible to escape a recognition of the very pronounced similarity between the clinical aspects of Hodgkin's disease and those of many malign neoplasms especially in the tendency to dissemination and to recurrences, and the ultimate general effects on the individual. In no disease is a prompt and particularly an early positive diagnosis of more consequence in successful treatment. This most important part of the therapeutic problem has, we believe, become relatively simple.

Without detracting in the least from the great importance of accurate history taking with its proper interpretation and a most thorough and complete examination,[21] these observations alone will not lead to an indisputably positive recognition of the disease, at least while a cure is still possible or probable. Final proof comes from the laboratory and there must be a competent objective observer who can recognize and construe slight variations, hematologic, bacteriologic and histologic. At the present time a satisfactory blood examination gives the most reliable immediate diagnostic evidence. Histologic studies cannot be equally positive until the early minute pathologic appearances of borderline affections are definitely established, granting that this may eventually be accomplished, and can never be possible in those less common types which do not manifest glandular swellings or easily accessible involvement in unimportant tissues. Nor can bacteriologic methods be uniformly satisfactory. Diphtheroid organisms are ubiquitous. Contaminations may occur under the most rigid technic, and more important still, the organism may take ten days to grow satisfactorily.

Material for histologic study can never, and for bacteriologic study, seldom, be obtained without the excision of a test gland or some affected tissue. Personal observations would have convinced us, even were the proof not clearly written in the reported experiences of all who have treated this disease, that partial excisions were accompanied by such actual and not hypothetic dangers of dissemination that "test excisions" are absolutely contraindicated unless the stage or the character of the disease is such that the only hope lies in vaccine therapy, should its value ever be undisputably established. Even under these conditions, using a polyvalent stock vaccine may be a safer method than taking some undue chances to obtain an autogenous culture.

Since Bonfils (1856) first pointed out that there was no increase in the white blood corpuscles in Hodgkin's disease and this fundamental observation was incorrect, it has been held that there are no characteristic blood changes in this affection, and that such as were observed marked either a secondary infection or a transition to lymphatic leukemia.

The essential features in the blood picture that have proved to be almost pathognomonic with but few conditions to be excepted, can be summarized briefly.[22]

There are two distinct types, an early and a late, showing a constant characteristic increase in the number of platelets (unless exhaustion of the bone marrow occurs) with abnormally large forms and either a relative or absolute increase in the so-called transitional cells. In the early type the leukocytes are usually less than ten thousand. Very early there is a moderate increase in the basophils, and when the disease is well established the eosinophils are slightly increased. The polymorphonuclear neutrophils remain within the usual limits, the lymphocytes at or slightly above the normal. The late type shows a leukocytosis which may reach one hundred thousand, the neutrophils are relatively increased to a percentage of from 75 to 92 and the lymphocytes are reduced to 5 per cent., frequently even less. The transitionals, the only other cells found in any numbers, are usually above 8 per cent. unless the leukocytosis is very high, when they may be relatively fewer, but still exceed the lymphocytes in number. This late picture is a result of the intensity of the disease rather than the extent of involvement and is usually largely dependent on duration for its development. Not only has this blood picture held clinically, having been confirmed in every instance either histologically or bacteriologically or both, but has appeared in monkeys inoculated with the living Hodgkin's bacillus and in one normal individual injected with the same, but killed, bacteria. Notably in one case of chloroma and two of so-called lymphosarcoma, the blood examination was positive and was confirmed by the cultivation of typical organisms from tissues that histologically alone might not have been properly diagnosed.

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[21] A complete examination will determine the details of treatment and should include careful investigations by trustworthy specialists of the mouth, throat and nose, including the accessory sinuses, and may be satisfactorily conclusive only after skiagraphs have been made. No thoracic examination, however carefully done, is adequate until suitable roentgenograms have determined the absence of involved mediastinal glands or their size and location if present. When there is slight involvement in the anterior mediastinum, it is often unrecognizable by other methods, and this is especially true of the posterior which is invaded more frequently than is supposed. Moreover, this affords the only accurate method of gaging the efficacy of treatment even when the intrathoracic involvement is sufficient to be recognized by ordinary methods of examination. No great concern need be given to actual lung involvement as this is a manifestation of a late and probably a hopeless stage.

[22] It is quite probable that the reasons why these characteristic variations in the blood picture have so long escaped detection, depend on the technical methods followed in making and staining the blood smears and on the varying conceptions of the proper differentiation of the groups of leukocytes. Thus Litten is quoted by Fischer as having noted the platelet increase in 1895, an observation which Fischer attempted unsuccessfully to confirm, but which was upheld by Selenew who also remarked the very large forms. It remained for Bunting (Bull. Johns Hopkins Hosp., 1911, xxii, 114) to show the constancy and evident source of these structures in Hodgkin's disease. Lymphocytosis occurs and has been recognized by many observers, but is of little diagnostic importance since there is a constant and marked lymphopenia after the early stage. This was commented on by Steiger (Berl. klin. Wchnschr., 1913, i, 2129) who also repeated the old observation of a tendency to eosinophilia, which may be so high (over 20 per cent.) as to suggest the presence of some animal parasite and yet be due, as Lincoln's case has shown (Lincoln: Boston Med. and Surg. Jour., 1908, clvii, 677) entirely to an atypical manifestation of the disease. The leukocytosis which occurs in the late stages has been noted repeatedly.

Confusion has arisen so far in but one class of cases, those of tuberculous adenitis with an acute (coccal) secondary infection. Here, too, histologic and bacteriologic controls can fail to be conclusive. Differentiation from uncomplicated tuberculous adenitis is seldom difficult, the blood pictures are distinct and the reaction to tuberculin usually confirmatory. We have seen a positive von Pirquet reaction but four times. One patient had a clearly definite apical lesion, one, an adult with so-called lymphosarcoma, was without a demonstrable tuberculous focus, and the other two had preexisting tuberculous adenitis. In an acute case miliary tuberculosis was discovered post mortem and there had been a negative tuberculin test two months before. This man showed shortly before death a temporary transition to what is commonly accepted as a lymphatic leukemia blood count.

TREATMENT

However constant has been dispute as to the name or nature of the disease, there has ever been unanimous agreement that it was inevitably fatal in less than five years. Evidently, therefore, successful therapeutic measures would have to differ from any hitherto employed and must find their application in combating the various pathologic processes manifested as the disease progresses, while attempting at the same time to protect and enhance such curative physiologic reaction as could be recognized clinically and pathologically. Five years elapsed after our investigations began before the *B. hodgkini* was first isolated and its probable etiologic relationship established, so that we had opportunity to try other therapeutic methods than those dependent on a specific bacteriology. Our working hypothesis has been to accomplish (1) an exclusion of all possible liability to reinfection, hence a removal of the primary source of infection and its portal of entry; (2) the most rapid elimination of at least the major portion of the diseased tissue with the bacteria and toxins contained therein, in order to prevent further dissemination and to place the balance of power in favor of individual resistance, wherefore its surgical extirpation when conditions permitted; (3) a destruction of the remaining bacteria by any and every means, especially the Roentgen ray, hygiene, and more recently vaccine therapy has been employed; (4) the conversion into fibrous tissue by hygiene and the Roentgen ray of such irremovable abnormal tissue as cannot undergo resolution; (5) and finally, to continue treatment as circumstances seem to indicate until a clinical and roentgenologic examination and a normal blood picture indicate a cure has been of at least a year's duration.

The measures to be described hereafter have been found to give the best results, results so encouraging at present that their presentation seems to be justified. Every detail has been found to be of such importance that the reasons for the application of each will be given lest any be considered unessential and be slighted or discarded at the cost of the utmost possible prolongation of life and comfort of some individual. It should not be supposed that the procedures are equally applicable to all cases whatever be the stage of the disease or evident virulence of infection. Here again be it known that the extent of involvement is less significant than its location and nature, which can only be revealed by the detailed examination already outlined.

1. *Removal of the Source of Infection*—A. Where involvement is primarily cervical a complete pericapsular tonsillectomy in definitely and invariably indicated even if the tonsils appear perfectly normal. In addition the teeth, nose, ears, eyes and accessory structures must be excluded as the site of primary infection, or properly treated. B. If the primary glandular involvement is extracervical, a search must be made for a source of infection in the area thereby indicated and suspicious lesions treated appropriately. These measures should be instituted immediately and when possible carried out under local anesthesia, observing, so far as possible, the principles underlying the treatment of malignant tumors.

2. *Extirpation of the Major Portion of the Disease.* Excision of the cervical glands can be done as thoroughly as in the block dissection advocated by Crile, with the possible exception of preserving at least a part of the eleventh nerve and observing otherwise all of the precautions advocated by Halsted to safeguard dissemination. This can be accomplished without unduly reducing resistance, and we believe with less risk to the individual, than attempting to treat them otherwise. Any dissection less complete and careful is positively contraindicated.

The glands will be found to be more or less adherent, in some instances so adherent that their separation from the subclavian vein will be difficult, from the internal jugular so formidable, that this vein should be excised unless there be any question of the patency of its fellow. Glands adherent at the subclavian-jugular angle may be extremely trying to extirpate, but their removal is imperative in that this last source of mediastinal infection must be excluded. In spite of every effort we have cut the thoracic duct in two individuals. In one it was ligated, in the other the discharge of chyle was finally controlled by pressure. Neither manifested any ill effect.

The entire area exposed should be treated thoroughly and actively with full strength tincture of iodin and drained, as it is inconceivable that all contamination can be avoided. This additional irritant also increases the immediate inflammatory reaction, a very desirable feature, particularly as it has no effect on the ultimate functional or cosmetic result. Exposures of the entire wound area to the Roentgen ray should be started not later than the second day, preferably within a few hours of operation and continued at intervals of a few days to the limit of skin tolerance, for reasons that will be given later.

Such radical treatment will be criticized particularly by those wanting in surgical sympathy. In explanation be it known that any less thorough or even as thorough excision, without disinfection and subsequent radiation, may be followed by a recurrence, which, as Reed has reemphasized, can be more extensive than the original involvement. Recurrences in Hodgkin's disease are as little to be desired as in carcinoma. We have seen other glandular enlargements (for example, axillary, opposite cervical) begin their final decline *only after the removal* of this source of infection or drain on the powers of general resistance when the treatment was otherwise unchanged, just as we have seen some cervical enlargements permanently disappear under the Roentgen ray *after* tonsillectomy. These observations have been assumed to indicate that the balance of power has been changed and have been sufficiently numerous and well controlled to convince us that such treatment may determine the ultimate result no matter what other therapy is employed.

As yet we have not seen the same beneficent effect on mediastinal involvement, though apparently complete and final resolution has followed in axillary glands that have been probably, in size, at least, as extensively involved. The explanation seems to lie in the comparatively slight effect of the rays on intrathoracic tissue. Progress in intrathoracic involvement has been checked in two individuals if the radiographic evidence is conclusive. The general health has remained unimpaired in one boy for over six months and one girl appears radiantly healthy after four months, but in both the blood findings are ominous. Mediastinal infection may occur early or be absent even when both sides of the neck and both axillae have shown extensive enlargements for months. The appearance of intrathoracic involvement, in our experience, has been of more sinister significance than a moderate splenic or hepatic enlargement. Indeed, these may indicate, when other conditions are favorable, but an extensive reaction on the part of the defensive mechanism. Therefore we emphasize the extreme importance of protecting the mediastinum from any infection by extension from the neck or axilla, particularly before, but also even after intrathoracic involvement has occurred. We take this to mean that when the excision of the primarily affected cervical glands is not followed promptly by the progressive resolution of secondarily enlarged glands which may infect those in the mediastinum, that these glands also should be excised.

Axillary dissections should be as extensive and as thorough as the cervical. This requires division but not excision of the pectoralis major and resection of the minor. The nerves supplying the pectoralis major and the long thoracic nerve should be preserved. Involved glands have been found anterior to the major pectoral, between it and the minor and extending upward along the vein to the falciform ligament. An incision can be made along the anterior axillary line, extending thence if necessary a short distance along the lower margin of the clavicle that will give adequate exposure and not injure the breast tissue in women nor be cosmetically objectionable. Subsequent wound treatment should be the same as after cervical excisions.

No case in which the inguinal glands were affected primarily has come at a stage when radical extirpation was thought to have been indicated. The same general plan should be followed to protect the retroperitoneal as the intrathoracic lymphatics.

Patients presenting themselves in the later stages of the disease, with advanced involvement, intrathoracic or intraperitoneal or both, have been subjected to no radical treatment and this has probably been a mistake, at least in exceptional cases. Those in fairly good general condition and in whom the blood changes do not indicate the latest stage may be benefited materially by thus starting a regressive phase when other methods may help greatly. Without the initiative of this wave of regression those procedures have been futile. In one apparently hopeless case the patient has shown remarkable progress during the period between the excision of glands and the final preparation of her vaccine. This particular organism grew very reluctantly, and the excision removed considerable tissue from neck and groin because the periglandular adhesions made safer and easier the extirpation of groups of glands. Had she received any treatment in this interval there might be less justification in attributing some causal relationship to this excision.

3. *Destruction of Bacteria by the Roentgen Ray.*—No permanent cure has ever been obtained solely by the use of these rays. Numerous instances of marked improvement have been noted since the observations published by Senn.[23] Pfeiffer[24] made a very careful and extensive study of the value of Roentgen therapy in Hodgkin's disease and found the usual discouraging facts; after varying intervals of great improvement recurrences were inevitable and finally became uncontrollable. The reasons for its marked temporary efficacy have, to some extent, been discovered. A very resistant culture of *B. hodgkini* implanted on the most favorable mediums was destroyed by one exposure under conditions identical with the therapeutic dose, so long as these cultures were not much over 5 days old. Later than this the involution forms that develop so characteristically are more resistant, and after exposure to the ray the control subcultures were positive. This effect is not due to changes in the mediums, which after the same exposure supported subsequent cultures apparently equally well.

The patient from whose tissues the *B. hodgkini* was first grown in 1912, had, low in her right axilla, two glands a few inches apart. One was excised as a control. Cultures were positive, sections showed the usual moderately chronic process. The other gland was subjected to the usual radiotherapy and later excised.[25] Cultures this time were negative, when the technic had been developed so that positive cultures were being obtained constantly from tissue that was found histologically to show the disease. Comparison of the sections, which unfortunately were not stained and studied for the presence of bacteria, showed increased sclerosis, hyaline degeneration and an abundance of the "endothelioid" cells in excess of what could have been expected by natural reaction in the elapsed time. Moreover, there was present in the periglandular tissue, increase in fibrous elements as well as infiltration with round cells and neutrophils.

The effects of the ray immediately after operation are of the same character, only possibly less intense, than when given after excisions of malignant neoplasms with reflected skin flaps as advocated by Crile. There is a remarkable increase in the inflammatory reaction shown by the excessive serous exudate and superficial deposition of fibrin, the overlying skin is edematous and healing correspondingly delayed. After several months the evidences of the excess irritation disappear completely, the skin becomes soft and movable, pigmentation disappears, the scars of incisions are narrow and pale and there is a much reduced liability to keloidal changes.

Burns have resulted exceptionally and are probably not always to be avoided even under the most skilful administration and accurate dosage of the rays. We have been singularly fortunate in having the cooperaisms from tissues that histologically alone might not have been properly diagnosed.

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[23] Senn: New York Med. Jour., 1903, lxxvii, 655.

[24] Pfeiffer: Beitr. z. klin. Chir., 1906, l, 277.

[25] Invaluable lessons were learned from this patient who, with the one exception noted below, is the last who has been subjected to meddlesome surgery. As a result of partial excisions the disease was so spread in the axilla as to demand a complete axillary dissection to protect the mediastinum, which has fortunately remained free.

Confusion has arisen so far in but one class of cases, those of tuberculous adenitis with an acute (coccal) secondary infection. Here, too, histologic and bacteriologic controls can fail to be conclusive. Differentiation from uncomplicated tuberculous adenitis is seldom difficult, the blood pictures are distinct and the reaction to tuberculin usually confirmatory. We have seen a positive von Pirquet reaction but four times. One patient had a clearly definite apical lesion, one, an adult with so-called lymphosarcoma, was without a demonstrable tuberculous focus, and the other two had preexisting tuberculous adenitis. In an acute case miliary tuberculosis was discovered post mortem and there had been a negative tuberculin test two months before. This man showed shortly before death a temporary transition to what is commonly accepted as a lymphatic leukemia blood count.

TREATMENT

However constant has been dispute as to the name or nature of the disease, there has ever been unanimous agreement that it was inevitably fatal in less than five years. Evidently, therefore, successful therapeutic measures would have to differ from any hitherto employed and must find their application in combating the various pathologic processes manifested as the disease progresses, while attempting at the same time to protect and enhance such curative physiologic reaction as could be recognized clinically and pathologically. Five years elapsed after our investigations began before the *B. hodgkini* was first isolated and its probable etiologic relationship established, so that we had opportunity to try other therapeutic methods than those dependent on a specific bacteriology. Our working hypothesis has been to accomplish (1) an exclusion of all possible liability to reinfection, hence a removal of the primary source of infection and its portal of entry; (2) the most rapid elimination of at least the major portion of the diseased tissue with the bacteria and toxins contained therein, in order to prevent further dissemination and to place the balance of power in favor of individual resistance, wherefore its surgical extirpation when conditions permitted; (3) a destruction of the remaining bacteria by any and every means, especially the Roentgen ray, hygiene, and more recently vaccine therapy has been employed; (4) the conversion into fibrous tissue by hygiene and the Roentgen ray of such irremovable abnormal tissue as cannot undergo resolution; (5) and finally, to continue treatment as circumstances seem to indicate until a clinical and roentgenologic examination and a normal blood picture indicate a cure has been of at least a year's duration.

The measures to be described hereafter have been found to give the best results, results so encouraging at present that their presentation seems to be justified. Every detail has been found to be of such importance that the reasons for the application of each will be given lest any be considered unessential and be slighted or discarded at the cost of the utmost possible prolongation of life and comfort of some individual. It should not be supposed that the procedures are equally applicable to all cases whatever be the stage of the disease or evident virulence of infection. Here again be it known that the extent of involvement is less significant than its location and nature, which can only be revealed by the detailed examination already outlined.

1. *Removal of the Source of Infection*—A. Where involvement is primarily cervical a complete pericapsular tonsillectomy in definitely and invariably indicated even if the tonsils appear perfectly normal. In addition the teeth, nose, ears, eyes and accessory structures must be excluded as the site of primary infection, or properly treated. B. If the primary glandular involvement is extracervical, a search must be made for a source of infection in the area thereby indicated and suspicious lesions treated appropriately. These measures should be instituted immediately and when possible carried out under local anesthesia, observing, so far as possible, the principles underlying the treatment of malignant tumors.

2. *Extirpation of the Major Portion of the Disease.* Excision of the cervical glands can be done as thoroughly as in the block dissection advocated by Crile, with the possible exception of preserving at least a part of the eleventh nerve and observing otherwise all of the precautions advocated by Halsted to safeguard dissemination. This can be accomplished without unduly reducing resistance, and we believe with less risk to the individual, than attempting to treat them otherwise. Any dissection less complete and careful is positively contraindicated.

The glands will be found to be more or less adherent, in some instances so adherent that their separation from the subclavian vein will be difficult, from the internal jugular so formidable, that this vein should be excised unless there be any question of the patency of its fellow. Glands adherent at the subclavian-jugular angle may be extremely trying to extirpate, but their removal is imperative in that this last source of mediastinal infection must be excluded. In spite of every effort we have cut the thoracic duct in two individuals. In one it was ligated, in the other the discharge of chyle was finally controlled by pressure. Neither manifested any ill effect.

The entire area exposed should be treated thoroughly and actively with full strength tincture of iodin and drained, as it is inconceivable that all contamination can be avoided. This additional irritant also increases the immediate inflammatory reaction, a very desirable feature, particularly as it has no effect on the ultimate functional or cosmetic result. Exposures of the entire wound area to the Roentgen ray should be started not later than the second day, preferably within a few hours of operation and continued at intervals of a few days to the limit of skin tolerance, for reasons that will be given later.

Such radical treatment will be criticized particularly by those wanting in surgical sympathy. In explanation be it known that any less thorough or even as thorough excision, without disinfection and subsequent radiation, may be followed by a recurrence, which, as Reed has reemphasized, can be more extensive than the original involvement. Recurrences in Hodgkin's disease are as little to be desired as in carcinoma. We have seen other glandular enlargements (for example, axillary, opposite cervical) begin their final decline *only after the removal* of this source of infection or drain on the powers of general resistance when the treatment was otherwise unchanged, just as we have seen some cervical enlargements permanently disappear under the Roentgen ray *after* tonsillectomy. These observations have been assumed to indicate that the balance of power has been changed and have been sufficiently numerous and well controlled to convince us that such treatment may determine the ultimate result no matter what other therapy is employed.

As yet we have not seen the same beneficent effect on mediastinal involvement, though apparently complete and final resolution has followed in axillary glands that have been probably, in size, at least, as extensively involved. The explanation seems to lie in the comparatively slight effect of the rays on intrathoracic tissue. Progress in intrathoracic involvement has been checked in two individuals if the radiographic evidence is conclusive. The general health has remained unimpaired in one boy for over six months and one girl appears radiantly healthy after four months, but in both the blood findings are ominous. Mediastinal infection may occur early or be absent even when both sides of the neck and both axillae have shown extensive enlargements for months. The appearance of intrathoracic involvement, in our experience, has been of more sinister significance than a moderate splenic or hepatic enlargement. Indeed, these may indicate, when other conditions are favorable, but an extensive reaction on the part of the defensive mechanism. Therefore we emphasize the extreme importance of protecting the mediastinum from any infection by extension from the neck or axilla, particularly before, but also even after intrathoracic involvement has occurred. We take this to mean that when the excision of the primarily affected cervical glands is not followed promptly by the progressive resolution of secondarily enlarged glands which may infect those in the mediastinum, that these glands also should be excised.

Axillary dissections should be as extensive and as thorough as the cervical. This requires division but not excision of the pectoralis major and resection of the minor. The nerves supplying the pectoralis major and the long thoracic nerve should be preserved. Involved glands have been found anterior to the major pectoral, between it and the minor and extending upward along the vein to the falciform ligament. An incision can be made along the anterior axillary line, extending thence if necessary a short distance along the lower margin of the clavicle that will give adequate exposure and not injure the breast tissue in women nor be cosmetically objectionable. Subsequent wound treatment should be the same as after cervical excisions.

No case in which the inguinal glands were affected primarily has come at a stage when radical extirpation was thought to have been indicated. The same general plan should be followed to protect the retroperitoneal as the intrathoracic lymphatics.

Patients presenting themselves in the later stages of the disease, with advanced involvement, intrathoracic or intraperitoneal or both, have been subjected to no radical treatment and this has probably been a mistake, at least in exceptional cases. Those in fairly good general condition and in whom the blood changes do not indicate the latest stage may be benefited materially by thus starting a regressive phase when other methods may help greatly. Without the initiative of this wave of regression those procedures have been futile. In one apparently hopeless case the patient has shown remarkable progress during the period between the excision of glands and the final preparation of her vaccine. This particular organism grew very reluctantly, and the excision removed considerable tissue from neck and groin because the periglandular adhesions made safer and easier the extirpation of groups of glands. Had she received any treatment in this interval there might be less justification in attributing some causal relationship to this excision.

3. *Destruction of Bacteria by the Roentgen Ray.*—No permanent cure has ever been obtained solely by the use of these rays. Numerous instances of marked improvement have been noted since the observations published by Senn.[23] Pfeiffer[24] made a very careful and extensive study of the value of Roentgen therapy in Hodgkin's disease and found the usual discouraging facts; after varying intervals of great improvement recurrences were inevitable and finally became uncontrollable. The reasons for its marked temporary efficacy have, to some extent, been discovered. A very resistant culture of *B. hodgkini* implanted on the most favorable mediums was destroyed by one exposure under conditions identical with the therapeutic dose, so long as these cultures were not much over 5 days old. Later than this the involution forms that develop so characteristically are more resistant, and after exposure to the ray the control subcultures were positive. This effect is not due to changes in the mediums, which after the same exposure supported subsequent cultures apparently equally well.

The patient from whose tissues the *B. hodgkini* was first grown in 1912, had, low in her right axilla, two glands a few inches apart. One was excised as a control. Cultures were positive, sections showed the usual moderately chronic process. The other gland was subjected to the usual radiotherapy and later excised.[25] Cultures this time were negative, when the technic had been developed so that positive cultures were being obtained constantly from tissue that was found histologically to show the disease. Comparison of the sections, which unfortunately were not stained and studied for the presence of bacteria, showed increased sclerosis, hyaline degeneration and an abundance of the "endothelioid" cells in excess of what could have been expected by natural reaction in the elapsed time. Moreover, there was present in the periglandular tissue, increase in fibrous elements as well as infiltration with round cells and neutrophils.

The effects of the ray immediately after operation are of the same character, only possibly less intense, than when given after excisions of malignant neoplasms with reflected skin flaps as advocated by Crile. There is a remarkable increase in the inflammatory reaction shown by the excessive serous exudate and superficial deposition of fibrin, the overlying skin is edematous and healing correspondingly delayed. After several months the evidences of the excess irritation disappear completely, the skin becomes soft and movable, pigmentation disappears, the scars of incisions are narrow and pale and there is a much reduced liability to keloidal changes.

Burns have resulted exceptionally and are probably not always to be avoided even under the most skilful administration and accurate dosage of the rays. We have been singularly fortunate in having the cooperation of exceptionally competent therapeutic roentgenologists who will subsequently make a formal report of their work and observations. It is a pleasant duty to acknowledge an indebtedness to Dr. Foerster and Dr. Baer for their unflagging interest in our work and generous care of these patients, but particularly for having proved the value of this phase of treatment, possibly as important as any other detail, when given rationally as to time, place and method.

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The mixed toxins of erysipelas and *Bacillus prodigiosus* so warmly and authoritatively advocated by Coley have not been tried, in spite of the knowledge that almost complete if temporary disappearance of glandular swellings has followed acute intercurrent infections, notably in one rather advanced case after a severe scarlatina. The belief that Hodgkin's disease was an inflammation, and a disinclination to add to the intoxication in view of the lack of evidence that any permanent benefit has thus been obtained, even in Coley's cases,[28] was considered sufficiently contraindicative. In a personal communication Dr. Coley has stated that a patient under the care of a former assistant was treated in the Ottawa hospital and has remained well for six years.[29] In this instance, while the clinical diagnosis appeared probable it was not confirmed pathologically and must therefore be, to some extent, questionable.

5. *Vaccines.*—Successful active or passive immunization in the light of the constant failures that have followed all other therapeutic methods, has been a stimulating hypothetic possibility. Encouraging results are not wanting, neither are the discouraging, at least so far as vaccination is concerned. Improvement has followed subcutaneous injections of both polyvalent stock vaccines and the autogenous, but not in every case, and in some at least, the same old discouraging sequence of events ensues and subsequently an uncontrollable recrudescence leading rapidly to death gives the impression that history is repeating itself and that another "cure" may have to be admitted to the list of failures.

In no case that we have seen treated by vaccination has there been a favorable result in the rapidity, extent or permanence of improvement that has not been equalled at least by observations on similar cases treated essentially similarly except for the vaccine administration.

One boy whose history will be given has had vaccine treatment over a period of two months for a slight mediastinal involvement, the only discoverable manifestation of a recurrence. Stock vaccines prepared by Dr. Rosenow, who generously forwarded an adequate supply, and by Dr. Clara Moore at the University of Wisconsin according to Dr. Rosenow's directions, have been given at five-day intervals, to the total number of 62,000 million bacilli. There has never been a local or general reaction and his health has remained good. The involvement has remained stationary but in addition he has been receiving the Roentgen ray in maximum doses. His blood is beginning to show features of the late stage.

Another patient, whose history also will be given, had, in addition to extensive mediastinal involvement, a small group of involved glands in her right axilla. She received subcutaneously over a period of four months 18,000 million bacilli of an autogenous vaccine. There was improvement in her general health, increase in weight, but not more than could have resulted without the use of vaccines. No marked general reactions resulted at any time, though subcutaneous nodular induration appeared at the sites of the injections. Roentgenographic and physical examinations showed no diminution in the mediastinal disease and her blood picture remained unchanged. It became essential to know what had occurred in the axillary glands as they had not changed noticeably in size or consistency. A partial excision was done and the glands were removed, followed by the maximum doses of the Roentgen ray which had not hitherto been given at this area. These glands were not manifestly different microscopically or macroscopically from those obtained from her opposite cervical region, three months before; in fact, the microscopic pictures were virtually identical.

There is no desire to detract from the possible value of vaccine therapy in Hodgkin's disease, but such observations as we have been able to make, and every effort to obtain proper controls and to maintain an objective point of view has been exerted, will permit of not more than a Scotch verdict. Vaccination in our hands cannot be shown as yet to have exerted marked if any influence on the ultimate course of the disease, but admittedly it is too soon to pass final judgment. If there is an ideal method of vaccination for Hodgkin's disease we believe it is yet to be established.

6. *Conversion of Abnormal Tissue into Fibrous Tissue.*—This is desirable when resolution is impossible, in order to remove any tendency to pressure effects and the liability to subsequent infections, of whatever nature, in structures of abnormal powers of resistance. Conversion into fibrous tissue by no means indicates that such accumulations will be permanent. It is quite probable that when this dense abnormal tissue is not subjected to constant physiologic strain it undergoes some form of degeneration leading to ultimate absorption as seen for example in certain types of pancreatitis and intra-abdominal adhesions. The best possible physical condition and Roentgen rays are the only methods that have been supposed to aid this transformation.

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It has been so well established that patients may be apparently well and remain so even up to five years, only to succumb to an acute, explosive recrudescence, that there is positive indication for prolonged aftertreatment, periodically repeated. The exceeding importance of protecting the general health cannot be overstated. Periods of even slight mental and physical depression have preceded, if they have not introduced, recrudescences. Except in two cases, in which the blood picture returned to normal and has remained there, we have not seen a single instance in which this evidence of a persistence of the infection was eliminated. Routine blood examinations are made as the patients report for observation, either at stated intervals of a few months or whenever untoward symptoms are suspected. The blood count has been found to give the earliest and surest evidence of an impending recrudescence or of the persistence of some focus of infection that had escaped detection. Apparently, recurrences of the disease, if taken very early, may be controlled by appropriate measures, whereas, if the infection increases to any extent in virulence the characteristic rapid fatal progress is to be expected.

REEXCISIONS

Glandular recurrences have shown two types. One that follows soon after incomplete excision is of the softer, more cellular and acute variety. The other appears at a longer interval, perhaps more than a year after complete excision and repeated courses of the Roentgen ray, and is more chronic in every way, yet reexcisions usually done under local anesthesia have produced improvement, local and general, otherwise unobtainable. Removal of early recurrences is at times justifiable, but seldom is to be expected to help materially and has led to the opinion expressed by Fischer that reexcisions are always unwarranted.

During the period of quiescence, when there is no longer any external evidence of the disease, should be the time, hypothetically at least, when the administration of vaccine virtually prophylactically might be expected to be of the greatest benefit. Under such conditions the only judgment as to immediate improvement would have to be based on blood changes, and as the vaccine itself affects the blood picture nothing definite can as yet be stated. There has been no improvement noted in the return toward normal; either there has been no change or there was evidence of some degree of unfavorable variation.

One must constantly bear in mind that the safety of these patients lies in unremitting watchfulness and attention to details. The fact that otherwise there must be a certain fatality should lead to persistence to find the therapeutic measures indicated and give one courage to put them to practice.

RESULTS

A cure or, better, a recovery can be considered as established only when there is no trace of the disease, including a normal blood picture, at least five years after the last manifestation of the infection. Recrudescence has occurred after a shorter period of apparent freedom. A case recorded by Eve,[30] had an interval of six years between a primary operation and the first recurrence but the diagnosis was not established.

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THE BEGINNING OF SYPHILIS*

W. A. PUSEY, M.D.
CHICAGO

> "By the historical method alone can many problems in medicine be approached properly. For example, the student who dates his knowledge of tuberculosis from Koch may have a very correct, but a very incomplete, appreciation of the subject. Within a quarter of a century our libraries will have certain alcoves devoted to the historical consideration of the great diseases, which will give to the student that mental perspective which is so valuable an equipment in life."
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The history of syphilis is unique among the records of great diseases. For, unlike most diseases, it does not gradually emerge into the historical records of medicine as its characters become recognized, but appears on the stage of history with a dramatic suddenness in keeping with the tragic reputation it has made—as a great plague sweeping within a few years over the known world. Syphilis is the one disease whose history begins with a definite date. That date is the date of the discovery of America. It happens also that the ten years from 1903 to 1913 were fruitful of discoveries of such fundamental importance in syphilis that they represent an epoch—the most important epoch—in the history of our knowledge of the disease.

LACK OF KNOWLEDGE OF SYPHILIS AMONG THE ANCIENTS

Local genital diseases have been recognized from ancient times; references to them are numerous in both Occidental and Oriental literature. It is, however, a very striking fact that in all medieval and ancient literature, although sexual matters are favorite topics and are considered frequently and with freedom, there is no reference to a disease of the genitals which is followed by constitutional symptoms. Many diseases involving the skin are easily recognized in the descriptions of medieval and classical literature, but in spite of the most painstaking and zealous searching of all literary evidence, no single authentic document has been found in ancient literature in which a description of syphilis can be recognized. Prior to the last years of the fifteenth century no description of the syphilitic syndrome existed.

THE EPIDEMIC OF SYPHILIS AT THE END OF THE FIFTEENTH CENTURY

In the autumn of 1494, Charles VIII of France, with an army composed of mercenaries from all parts of western Europe, invaded Italy for the conquest of Naples. Italy, which at this time had reached the height of effeminate luxury and was weakened by the rivalries of her numerous states, was able to make no effective resistance to the well-organized forces of Charles; and the progress of his army through the peninsula was more of a triumphal march of debauchery than a serious military campaign. Charles was able to make good his claims to the throne of Naples and to set up his court for permanent occupation. In a short time, however, his army became so tion of exceptionally competent therapeutic roentgenologists who will subsequently make a formal report of their work and observations. It is a pleasant duty to acknowledge an indebtedness to Dr. Foerster and Dr. Baer for their unflagging interest in our work and generous care of these patients, but particularly for having proved the value of this phase of treatment, possibly as important as any other detail, when given rationally as to time, place and method.

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* This article is the first chapter of a monograph on "Syphilis," being one part of a volume, now on the press of the American Medical Association, commemorating the completion of the Panama Canal and reflecting what medicine has done to make the canal possible. The article on Typhus Fever by Vaughan, published May 29, 1915, was part of a monograph on "Infection and Immunity," also to be included in this book. *The other articles contained in this "Commemoration Volume"* are by Drs. W. J. Mayo, Simon Flexner, E. O. Jordan, Major General Gorgas and Mr. F. L. Hoffman. The book, of some 380 pages, will be issued about July 1. Price, $2.50.

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> "By the historical method alone can many problems in medicine be approached properly. For example, the student who dates his knowledge of tuberculosis from Koch may have a very correct, but a very incomplete, appreciation of the subject. Within a quarter of a century our libraries will have certain alcoves devoted to the historical consideration of the great diseases, which will give to the student that mental perspective which is so valuable an equipment in life."
> —*Osler.*

The history of syphilis is unique among the records of great diseases. For, unlike most diseases, it does not gradually emerge into the historical records of medicine as its characters become recognized, but appears on the stage of history with a dramatic suddenness in keeping with the tragic reputation it has made—as a great plague sweeping within a few years over the known world. Syphilis is the one disease whose history begins with a definite date. That date is the date of the discovery of America. It happens also that the ten years from 1903 to 1913 were fruitful of discoveries of such fundamental importance in syphilis that they represent an epoch—the most important epoch—in the history of our knowledge of the disease.

LACK OF KNOWLEDGE OF SYPHILIS AMONG THE ANCIENTS

Local genital diseases have been recognized from ancient times; references to them are numerous in both Occidental and Oriental literature. It is, however, a very striking fact that in all medieval and ancient literature, although sexual matters are favorite topics and are considered frequently and with freedom, there is no reference to a disease of the genitals which is followed by constitutional symptoms. Many diseases involving the skin are easily recognized in the descriptions of medieval and classical literature, but in spite of the most painstaking and zealous searching of all literary evidence, no single authentic document has been found in ancient literature in which a description of syphilis can be recognized. Prior to the last years of the fifteenth century no description of the syphilitic syndrome existed.

THE EPIDEMIC OF SYPHILIS AT THE END OF THE FIFTEENTH CENTURY

In the autumn of 1494, Charles VIII of France, with an army composed of mercenaries from all parts of western Europe, invaded Italy for the conquest of Naples. Italy, which at this time had reached the height of effeminate luxury and was weakened by the rivalries of her numerous states, was able to make no effective resistance to the well-organized forces of Charles; and the progress of his army through the peninsula was more of a triumphal march of debauchery than a serious military campaign. Charles was able to make good his claims to the throne of Naples and to set up his court for permanent occupation. In a short time, however, his army became so weakened through disease and dissipation that the Neapolitans were able to assert themselves and drive it out. The retreat of Charles and his soldiers from Italy in the summer of 1495 was little better than a rout, and the various troops were left ultimately to return to their countries in their own disorganized way.

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* This article is the first chapter of a monograph on "Syphilis," being one part of a volume, now on the press of the American Medical Association, commemorating the completion of the Panama Canal and reflecting what medicine has done to make the canal possible. The article on Typhus Fever by Vaughan, published May 29, 1915, was part of a monograph on "Infection and Immunity," also to be included in this book. The other articles contained in this "Commemoration Volume" are by Drs. W. J. Mayo, Simon Flexner, E. O. Jordan, Major General Gorgas and Mr. F. L. Hoffman. The book, of some 380 pages, will be issued about July 1. Price, $2.50.

THE BEGINNING OF THE EPIDEMIC

All contemporaneous records are at one in attributing the epidemic of syphilis which began in Italy at this time to Charles' army, and the quick spread of the disease over Europe to the scattering of his troops. Syphilis, if it existed before this time, was unrecognized. It was at the appearance of this great epidemic that physicians and laymen alike became aware of a disease of the genitals, which was followed by constitutional symptoms and of which they had no previous experience.

THE SPREAD OF SYPHILIS OVER EUROPE

The development of syphilis in Italy can be traced in the local chronicles of the time step by step with the progress of Charles' army, and with the scattering of his soldiers it went over western Europe in a rapid-spreading epidemic. It appeared in France and Germany and Switzerland in 1495, in Holland and Greece in 1496. It spread to England and Scotland in 1497; to Hungary and Russia in 1499.

Iwan Bloch, to whom all students are indebted for bringing together the known facts concerning the early history of syphilis, gives many contemporaneous references testifying to the interest excited by the new disease and to the importance attached to it. Thus, in 1496, the Parliament of Paris decreed that all persons infected with the disease should leave the city within twenty-four hours. In 1496-1497 prophylactic measures against the disease were attempted at Nürnberg. On April 21, 1497, the town council of Aberdeen, Scotland, ordered that, for protection from the disease which had come out of France and strange parts, all light women desist from their vice and sin of venery and work for their support, on pain, else, of being branded with a hot iron on their cheek and banished from the town. Six months after the Aberdeen order, the Scottish Privy Council passed an edict ordering all inhabitants of Edinburgh afflicted with syphilis into banishment to the island of Inchkeith near Leith. In 1496, Grünpeck, a German writer, mentions that English soldiers in Italy had acquired syphilis. The archives of Bristol indicate that the disease was introduced there in 1498 from Bordeaux, and hence was called the Bordeaux disease. In the Breviarie of Health, by Andrew Boorde, published in 1575, it is stated that "In English Morbus Gallicus is called the French pocks, and when that I was young they were named the Spanish pocks."

Indeed this tendency to shift the responsibility for the disease on others by giving it their name, appears all through the early references to it. The Italians called it the Spanish or the French disease; the French called it the Italian disease; the English called it the French disease; the Russians called it the Polish disease; the Turks called it the French disease; the Indians and the Japanese called it the Portuguese disease. And, as we shall see, the first Spaniards who recognized the disease called it the disease of Española, which meant at that time the disease of Haiti.

ITS SPREAD TO THE ORIENT

In quick sequence the disease spread over the rest of the known world, carried by the great voyagers of that period. The Portuguese soon carried it to Africa and the Orient. The researches of Okamura and Susuki for Japan and China, and those of Jolly and others for India, show the introduction of syphilis into these countries only after contact with Europe. The Indian, Chinese and Japanese languages had no native names for the disease, and, like the Europeans, the Orientals gave it names indicating its foreign origin. In India the disease was first recognized in 1498, after the arrival of Vasco de Gama, who had left Portugal in 1497. It appeared in Canton, China, in 1905, after the visit of Europeans. It was not recognized in Japan until 1569, when its appearance at Nagasaki was attributed to Chinese or Portuguese sailors.

There is thus an accurate historic record of the startling spread of syphilis over the known world in a few years after 1495; and from that time it has everywhere been endemic. No similar record exists of the sudden establishment of any other great disease among the larger part of the earth's inhabitants.

THE SEVERITY OF THE FIRST EPIDEMIC

The early recognition of syphilis and the prompt record of its spread over the civilized world are to be accounted for not so much by its newness, although it was everywhere recognized as a new disease, as by its severity. It amounts almost to an axiom in pathology that when an infectious disease first appears among a people—finds lodgment in a virgin soil—it rages with unwonted severity. This has been noted many times—with measles, scarlet fever, smallpox, and with syphilis in modern epidemics among isolated peoples. And this was a characteristic of the great epidemic of syphilis which occurred at the end of the fifteenth century.

In syphilis as ordinarily seen, its early manifestations are trivial in character, so trivial in fact that they are dangerously deceptive to the careless. The symptoms are mild and the patients are not acutely ill. All evidence, however, points to the severe character of the disease during this first epidemic. The cases ran an acute febrile course accompanied by symptoms of such severity as are now seen only in very unusual cases. There were high fever, intense headache and bone and joint pains; early skin symptoms so severe that they simulated smallpox; great prostration, and very frequently a fatal ending early in the disease, a result that is the rarest occurrence at present. This epidemic had all the characteristics of a virulent plague. With the loose morals of the time, however, syphilization of the world was rapid, and contemporaneous evidence, Fracastoro for example, indicates that the severity of the symptoms of early syphilis rapidly diminished; and within fifty years the disease had assumed the character with which the world has since been familiar.

EARLY SPECULATION AS TO ITS ORIGIN

The origin of syphilis was, at the time of this great epidemic and until recently has still been, a subject of much speculation and discussion. In keeping with man's superstitions, particularly at the time of the appearance of syphilis, it has been attributed to every imaginable source; to vice and sin, and the anger of

Providence; to dirt and beasts; to the elements and the influence of the heavenly bodies. Much unsuccessful effort was made to demonstrate its presence in Europe in the middle ages and earlier, although contemporaneous opinion pointed to the Spaniards and Americans for its origin. Later, as the disease became familiar and men lost sight of its sudden appearance, opinion veered round to the view that it had always existed in Europe. It is only within the last thirty years that its American origin has been practically demonstrated.

THE EVIDENCE OF ITS AMERICAN ORIGIN

The bald fact of the sudden appearance of syphilis shortly after the return of Columbus from his first voyage might easily suggest and lend plausibility to the theory of the American origin of the disease. The presence of Spanish adventurers in Charles' army would furnish the connecting link between Barcelona and Seville and Columbus' crew and the Italian epidemic. But in addition to the chronologic sequence of Columbus' return from America and the first recognized epidemic of syphilis in Europe, there are numerous other facts which confirm the American theory of its origin.

As we have seen, certain of these facts stand out prominently in the great epidemic:

The disease at the time was recognized as a new disease.

Names for it did not exist, and as it spread over Europe, men were hard put to give it a designation. The same was true on its appearance in the Orient.

The development of the great epidemic was definitely associated with the Italian campaign of Charles VIII, and its rapid spread over Europe was associated with the breaking up of his army. Its origin was recognized as being southwestern Europe. Even with the first outbreak in Italy, Spain was pointed to as the country whence it came, and the Spanish soldiers of Charles' army were incriminated as the authors of its distribution.

The disease pursued a course of unusual severity and spread over Europe with the rapidity of an infectious disease among people unprotected by any previous infection with it.

ABSENCE OF EVIDENCE IN EARLY EUROPEAN BONES

Parallel with the absence of any pre-Columbian documentary evidence of the existence of syphilis, is the absence of any evidence of syphilis in pre-Columbian European or Oriental bones. Bones withstand time, and the ravages of many diseases can be clearly traced in ancient bones that have come down to us. Syphilis is one of the diseases which leaves frequent, unmistakable evidence of its existence in bones; and if syphilis existed in Europe before the discovery of America it would be expected that evidence of it would be abundantly found in the great collections of prehistoric, ancient and medieval bones that exist. With the licentiousness of Rome and of the Dark Ages, syphilis would have been expected to leave a broad trail in the bony remains of those times; and yet careful scrutiny of those bones has failed to reveal any evidence of it. Most of the great European collections of human skeletons of pre-Columbian times have been carefully examined with this point in view, without the finding of a single syphilitic bone, and no less an authority than Virchow, one of the world's greatest anthropologists and probably its greatest pathologist, has declared that no pre-Columbian bone has been produced presenting evidence of syphilis. On the other hand, human skeletons of later date showing syphilitic changes have been found in all parts of the world.

AMERICAN PREHISTORIC BONES

On the other side it must be said that we have no unquestionable evidence of syphilis in pre-Columbian bones in America. Syphilitic bones have been found in North and South and Central America, and the presumption is strong that some of these bones are of pre-Columbian origin. Nevertheless, the difficulty in establishing the antiquity of Indian remains is so great that the pre-Columbian origin of these bones cannot be demonstrated.

SPANISH DOCUMENTARY EVIDENCE

But quite apart from this circumstantial evidence of the American origin of syphilis, there has been discovered in recent times definite documentary evidence indicating the introduction of syphilis into Spain by the sailors of Columbus' first voyage. For the unearthing of this evidence we are indebted to Montejo y Robledo, a Spanish army surgeon, who critically examined all the early Spanish sources and reported his findings at the fourth Congreso internacional de Americanistas, at Madrid in 1882. The importance of Montejo's work was overlooked until attention was called to it by Seler in 1895.

Ruy Dias de Isla.—The most important evidence produced by Montejo—and surprisingly definite evidence it is—is the account of syphilis of Ruy Dias de Isla. To paraphrase Bloch: at the time of the first appearance of syphilis in Europe, Dias de Isla was a physician of note, who for ten years held the position of surgeon at the Hospital of All Saints in Lisbon. There he had a large experience in syphilis, which he incorporated in a special work which was published between 1510 and 1520, and was fortunately discovered by Montejo in the National Library of Madrid. Dias de Isla is known to have been in practice in 1493 in Barcelona, and he was thus in a position to be a witness to the very landing of syphilis in Europe. The title of Dias' book put into English is: "Treatise, entitled, Fruit of All Saints against the Disease of the Island Española, by Master Rodrigo de Isla, Surgeon and Citizen of Lisbon, to the Common and General Good of those Suffering from the Disease in Question, Commonly Called Bubas." The contents of the book are, briefly, as follows: Syphilis was unknown before the year 1493. It was brought by the crew of Columbus on his first voyage from Española, or Haiti. Dias called it the disease of the Island of Española, but also gave a number of native names for the disease. A majority of Columbus' crew returned to Spain infected with syphilis, and Dias himself treated several syphilitic sailors from this squadron, among them the pilot, Pinzon of Palos.

Oviedo, Las Casas, and the Spanish Chroniclers.—This record of Dias de Isla is corroborated by other contemporary Spanish chroniclers; particularly by the important works of Oviedo, and of the great Las Casas, both of whom were in America within a few years after its discovery. Oviedo was in Barcelona at the return of Columbus in 1493, and knew Columbus and members of his crew. In his "Historia general y natural de las Indias," and in a report drawn up at the command of Charles V of Spain, he recites: That the disease was contracted from Indian women by the Spaniards with Columbus; that it was brought by them to Spain and thus transmitted to the army of Charles VIII by Spanish soldiers; and that syphilis should be called the West Indian disease, rather than the French or Neapolitan disease. He also mentions in independent corroboration of Dias de Isla, that one of the brothers, Pinzon, contracted the disease, and that it "is common among the Indians, but in those regions is not so dangerous as with us."

Oviedo was an advocate for Spain, and it has been urged that the theory of the Indian origin of syphilis may have been readily adopted by him in his attempts to palliate the cruelty of the Spaniards toward the Indians. No such charge, however, will stand against Las Casas, whose efforts were all in behalf of the Indians, but who, nevertheless, did not hesitate to give in detail the facts of syphilis among them.

The father of Las Casas accompanied Columbus on his second voyage, and Las Casas himself was in Haiti in 1498, where he lived many years and wrote his "Historia general de las Indias." He records: "There were, and still are, two things which at the beginning were very dangerous to the Spaniards. One is the disease syphilis, which in Italy is known as the French evil. . . ."

"It is, however, known for certain that it came from this island, either when, with the return of the Admiral Don Christóbal Cólon with the news of the discovery of the West Indies, the first Indians arrived, whom I saw myself in Seville, or it may be that certain Spaniards were already tainted with this disease at the time of their first return to Castile. . . ."

"I took the trouble on several occasions to interrogate the Indians of this island as to whether this disease was of great antiquity, and they answered, 'Yes.'" . . .

"It is also an undoubted fact that all Spaniards addicted to sexual excess, who did not in this island observe the virtue of continence, were attacked by the disease, not one in a hundred escaping, unless the woman was healthy." He too emphasizes the greater severity of the disease among the Spaniards than among the natives.

In addition to Oviedo and Las Casas, numerous others of the early chroniclers of Spanish America (Pane, Sahagun, Hernandez), testify as shown by the researches of Montejo, to the pre-Columbian existence of syphilis in America. They show not only that the disease was known to the Indians, but that the Indians had numerous names for it; that they were fairly familiar with its symptoms and course, and had well-worked-out methods of treatment for it; and that the disease was much milder in its course among the Indians than among the Spaniards, who contracted it from them.

This brief summary of the discoveries of Montejo y Robledo from his researches among original Spanish authorities, furnishes the final link connecting the origin of syphilis with America, and, it would seem, compels us to conclude that syphilis was introduced into Europe from Haiti by the sailors of Columbus on their return in 1493 from his first voyage to America.

THE LANDAU IODIN SERUM TEST FOR SYPHILIS *

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A good deal of interest has been aroused lately in the new serum test for syphilis proposed by Landau.[1] It is declared that this test is more sensitive than the Wassermann reaction and that its simplicity makes it available for every one. Among the many tests said to have these qualities, the Landau demands attention because of the popular interest shown in it and the possibility that it may come into more or less general use. Any new test for deciding so important a diagnosis as that of syphilis must be subjected to the sharpest scrutiny, and tried in many thousand cases.

Landau at first used as a reagent a 0.05 per cent. solution of iodin in liquid petrolatum. The composition of various samples of this solvent varied enough, however, to make it difficult to obtain a reliable reagent, so that he later adopted carbon tetrachlorid (CCl_4) as a solvent. In this he dissolves 1 per cent. of iodin (a saturated solution which requires trituration to complete it), and uses 0.1 c.c. of this reagent to 0.2 c.c. of the serum to be tested. These are shaken together in a test tube 12 mm. in diameter, and allowed to stand at room temperature for four hours. If, at the end of this time, the serum above the decolorized reagent is a clear yellow, the reaction is recorded as positive. If the serum is an opaque grayish-white, it is recorded as negative. Only fresh serum, obtained not more than six hours before, and free from any cloudiness or hemoglobin stain, can be used. If the result is not easy to determine, 0.2 c.c. of ammonia solution may be added to clear up the doubt.

Landau, with his first technic, reported that he obtained, in a series of 122 cases, only one result that did not agree with the clinical diagnosis. This was a positive test in a case of a leg ulcer, clinically and serologically nonsyphilitic. He reported also that the reaction gave fifty-five positive readings in a series of ninety syphilitics, in whom only forty-nine positive Wassermann reactions were obtained.

These results have not been substantiated by others. Golay,[2] using the carbon tetrachlorid reagent, obtained forty-one positive, eleven doubtful, and eleven negative reactions in a series of sixty-three syphilitics, in which only thirty-seven positive Wassermann reactions were obtained. But he also reports in seventeen nonsyphilitics, all of whom had negative Wassermann reactions, a positive Landau test in eight cases. One of these was a case of gonorrhea, three cases of soft ulcer, two of tuberculosis and two of malignant tumor: 47 per cent. positive in nonsyphilitics! He concludes that the test is positive in a large percentage of cases of systemic disease, but reports negative reactions in all of three cases of "skin disease of external origin" and three healthy persons.

Villaret and Pierret[3] report agreement with the Wassermann reaction in thirty-two cases of thirty-nine

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* From the Dermatological Department of Cook County Hospital.

[1] Landau, Wilhelm: Untersuchungen über eine Reaktion luetischer Sera mit einem Jodöl-Reagens, Wien. klin. Wchnschr., 1913, xxvi, 1702.

[2] Golay, J.: La réaction de Landau, Rev. méd. de la Suisse romande, 1914, xxxiv, 571.

[3] Villaret and Pierret, R.: Tr. Soc. biol. de Paris, Presse méd., July 29, 1914, p. 582.

examined, and agreement with the clinical diagnosis in twenty-seven of thirty-three cases.

Capello[4] reports that in forty-one cases, the Landau reaction agreed with the Wassermann in only twenty-seven, leaving fourteen, or 34 per cent., in which it differed. In three cases of late syphilis under mercury treatment, the Wassermann reaction was negative, while the Landau gave a strong positive in two and a doubtful positive in one. In two cases clinically and serologically nonsyphilitic, the Landau test gave a strong positive. Of four cases in which the Wassermann reaction was a strong positive, the Landau gave a doubtful result in one and a frank negative in three.

My technic is the same as that prescribed, except that for the first of my series I used very small test tubes, in order to make the small column of serum longer and more easily seen. Later I adopted the regulation size, 12 mm. diameter, running a series of parallel reactions in both kinds of tubes, until I was satisfied that my results were practically the same with both, and that my early tests could be admitted as reliable. I also used from the beginning twice the prescribed quantities of serum and reagent, 0.4 c.c. of serum and 0.2 c.c. of reagent. But in order to check this with the original technic, and to check my results on each serum, I made each time two tests, one with the original quantities and a parallel test with the double quantities. The measurement of the reagent is a difficult matter in the ordinary pipets. My work was made much easier by the use of a Wright pipet, graduated in 0.1 c.c. In this, several doses of reagent can be taken up, separated by columns of air, and the movement of the thin liquid much more easily controlled.

On shaking the mixture of serum and reagent, an emulsion is formed which soon becomes a light yellow and then white. All serums decolorize the carbon tetrachlorid, so that it separates out and remains as a white layer under the serum.

The reading of the final result is by no means always easy. All degrees of opalescence occur, and even the addition of ammonia does not always clear up the doubt. Golay makes the same observation, and this accounts for the large number of doubtful reactions recorded by him and Capello. I have tried to avoid as far as possible recording doubtful reactions, and I believe that my use of two tests for each serum has been helpful in that direction. Where any doubt existed, I have tried to give the new test the benefit of it.

My results with fifty tests in forty-six cases of syphilis are shown in the accompanying table.

COMPARATIVE RESULTS WITH THE LANDAU AND WASSERMANN REACTIONS

	No. Cases	Landau Reaction			Wassermann Reaction	
		+	+—	—	+	—
Primary syphilis........	5	4		1	5	
Active secondary........	16	7		9	16	
Latent	11	1	1	9	5	6
Tertiary	17	13		4	13	4
Tabes	1			1	1	
Totals	50	25	1	24	40	10

One latent case under treatment gave a positive Landau and a negative Wassermann. This is greatly outweighed by the five latent cases which gave negative Landau reactions and positive Wassermanns. In the tertiary cases the honors are even. Nine cases gave positive reactions with both tests. Four gave positive Landau reactions and negative Wassermanns. Two of these were on the same patient. Four gave negative Landau reactions and positive Wassermanns.

Of forty tests in nonsyphilitics, all of whom had negative Wassermanns, twenty-nine gave negative Landaus, eleven positives. In these eleven cases, no history of syphilis could be obtained, although one, an old hemiplegic, may be suspected because of a history of cerebral hemorrhage at the age of 21. The positive Landau tests in this series were as follows:

One case of ulcer of the cheek from caustic applied by a dentist.
One of five cases of ulcus molle.
Two of five cases of gonorrhea.
One case of gonorrheal epididymitis.
One case of salpingitis and abortion.
One case of pulmonary tuberculosis with lupus of the palate.
One case of hemiplegia with ulcer of the leg.
One case of seborrheic dermatitis.
Two cases of dermatitis venenata, both from rhus toxicodendron.

My results differ from those of the other investigators of this subject in the low percentage of positive results in known syphilitics, 52 per cent. of positives in the forty-six cases, while the Wassermann reaction gave 84.8 per cent. of positives. It might be thought, from the large percentage of positives in tertiary cases, that the administration of iodids had something to do with the production of a positive Landau test. But all our secondary cases received iodids, and the Landau was especially weak in them, differing markedly from all the European writers on the subject, and agreeing most nearly with Kolmer,[5] who reports 71.6 per cent. of positive Landau reactions in Wassermann-positive serums. Mine gave 62.5 per cent. of positive Landaus in Wassermann-positive serums. Kolmer obtained 70 per cent. of positive tests in Wassermann-negative serums, which may be due to the fact that he used only 0.01 c.c. of the reagent, instead of 0.1 c.c., or with the fivefold amounts, 0.05 c.c. of reagent to 1.0 c.c. of serum. If the test depended on the same constituent of the serum that binds complement in the Wassermann test, it might be expected to give with a smaller amount of reagent a larger proportion of positives in syphilitics at the same time that a number of positives in nonsyphilitics would appear. But the corresponding increased percentage of positives in syphilis does not appear in Kolmer's series.

Leaving out the case of old hemiplegia as a suspect syphilis, my series of nonsyphilitics gave 27.8 per cent. of positive reactions. Golay, in seventeen nonsyphilitics, obtained 47 per cent. positive Landau reactions. Capello, in forty-one cases of both classes, obtained a positive Landau reaction in two which are probably nonsyphilitic, one a subacute polyarthritis and the other listed as clinically nonsyphilitic, both giving negative Wassermanns. A test giving so large a percentage of positive results in nonsyphilitic cases can certainly be of no value in the diagnosis of syphilis, and the idea that it is a test for syphilis can do incalculable harm.

The hope with which I undertook this work, that a negative Landau test might prove of value in eliminating syphilis from the diagnostic possibilities of a case, has been destroyed by the failure of the test to equal the Wassermann reaction in my series of known syphilitics. My statistics do not bear out the idea of Golay and Capello, who think that under treatment the test remains positive longer than the Wassermann reaction.

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[4] Capello, G.: Contributo allo studio della reazione di Landau nella sifilide, Gazz. d. osp., 1915, xxxvi, 423.

[5] Kolmer, J. A.: Concerning Landau's Color Test for Serodiagnosis of Syphilis, The Journal A. M. A., May 1, 1915, p. 1461.

The Landau reaction is, as Golay says, an interesting phenomenon, which may some day be made use of in research. As a means of diagnosis, however, it deserves no consideration, but should be relegated to the same shelf as its predecessor and possible relative, the iodin reaction of the leukocytic granules.

SUMMARY

1. No reliance can be placed on a positive Landau, for it occurs in a large percentage of nonsyphilitics.
2. A negative Landau is of no value in proving the absence of syphilis, for a large proportion of syphilitics have negative Landaus.
3. So far as this series of cases can show, no definite relation exists between syphilis and the Landau serum reaction.

A FURTHER NOTE ON LANDAU'S COLOR TEST FOR SERODIAGNOSIS OF SYPHILIS *

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Shortly after the publication of my paper concerning Landau's color test for the serodiagnosis of syphilis[1] I learned that 0.1 c.c. instead of 0.01 c.c. of the 1 per cent. iodin in carbon tetrachlorid reagent should have been used with 0.2 c.c. of serum. THE JOURNAL,[2] from which I obtained this technic, had quoted from an Italian medical journal[3] which was responsible for the error. Additional foreign literature[4] states that the correct quantity of the iodin reagent is 0.1 c.c. and since my work had been done with 0.01 c.c. reagent or ten times less the amount given by Landau I have continued the work with this correction, the results being summarized in this paper.

A 1 per cent. solution of iodin was prepared according to weight by dissolving 1 gram of iodin crystals in 62.7 c.c. pure carbon tetrachlorid (specific gravity 1.59 at laboratory temperature) and the container was tightly stoppered to prevent evaporation. The regular and routine test was conducted by placing 0.2 c.c. of serum in a small test tube, adding 0.1 c.c. of the reagent and gently shaking until all color had been removed from the reagent.

The reagent has a deep purple blue color and owing to its high specific gravity settles in the test tube below the serum. After thorough agitation the mixture assumes a brownish color and the carbon tetrachlorid quickly settles to the bottom of the tube in a layer resembling chloroform.

Each serum was also tested routinely with five times the quantity of serum and reagent, namely, 1 c.c. of serum and 0.5 c.c. of reagent. This mixture results in the formation of a heavy brownish sediment overlaid with serum.

Immediately after serum and reagent are mixed the whole is distinctly cloudy; after standing for four hours at room temperature a syphilitic serum, according to Landau, becomes clear transparent yellow, whereas with a nonsyphilitic serum the fluid becomes a whitish gray and is opaque.

When 1 c.c. of serum and 0.5 c.c. of reagent are used the readings cannot usually be made at the end of four hours because of insufficient time for clearing. With this technic the mixtures must be centrifuged or the readings delayed for twenty-four hours.

I have experienced considerable difficulty in reading the reactions. With those reactions in which the supernatant serum is perfectly clear or quite cloudy no difficulties arise in recording the result, but in many instances the serum is neither clear nor distinctly cloudy, but is faintly opalescent, so that different observers will vary considerably in reading the same reactions. For this reason a portion of the unused serum should be on hand for comparison; but under any conditions the reading and interpretation of the tests are difficult and unsatisfactory.

I have again tested each serum with Landau's original reagent of iodized petrolatum, prepared by the addition of 5 drops of 10 per cent. tincture of iodin to each 10 c.c. of white paraffin oil, followed by thorough mixing. As the color of this mixture tends to fade spontaneously I have prepared fresh mixtures twice a week. The test with this reagent was conducted by placing 0.2 c.c. serum in a small test tube and adding 2.5 c.c. of the reagent followed by thorough mixing and standing aside at room temperature for from fifteen to twenty-four hours. A control without serum was included with each set of tests.

Immediately after mixing the serum and reagent the mixture is of a light pinkish color; the serum, however, quickly settles to the bottom of the tube and is of a deeper yellow color, while the deep pink tint returns to the supernatant oil. I have usually shaken the tubes once or twice more during the following six hours.

According to Landau a syphilitic serum decolorizes the mixture after fifteen hours, while the color persists a reddish yellow with normal and nonsyphilitic serum.

MATERIALS AND METHOD OF STUDY

In all 172 serums and fourteen cerebrospinal fluids[5] have been tested. The majority of these were collected within twenty-four to forty-eight hours of the time when these tests were made and were centrifuged if necessary to render them clear and free of corpuscles. Markedly opalescent serums as those collected soon after a meal were discarded; the majority were clear while a few were faintly tinged with hemoglobin. The latter were more likely to become cloudy and opaque with the iodin reagent than were perfectly clear serums.

I found no differences, however, in the results of the tests, whether a serum was secured within three hours or three days of the time when the tests were made, and likewise practically the same results were observed with fresh active serums and the same serums after heating at 55 C. (131 F.) for thirty minutes (inactivation). The plan of study was the following:

TECHNIC

(a) Two-tenths c.c. fresh active serum + 0.1 c.c. iodin tetrachlorid of carbon reagent; the results were

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* From the Laboratories of the Philadelphia Polyclinic and College for Graduates in Medicine.

[1] Kolmer, J. A.: Concerning Landau's Color Test for Serodiagnosis of Syphilis, THE JOURNAL A. M. A., May 1, 1915, p. 1461.

[2] Color Test for Syphilis, Misc. Abstr., THE JOURNAL A. M. A., Oct. 10, 1914, p. 1317.

[3] Un nuovo metodo diagnostico della sifilide, abstr., Riv. Osp., July 15, 1914, p. 641.

[4] Réaction des sérums syphilitiques avec le réactif de W. Landau, abstr., Presse méd., May 2, 1914, p. 335.

[5] I am indebted to Miss A. McNitt of the laboratory of the Philadelphia General Hospital for a number of these serums.

read after standing four hours and again after twenty-four hours at room temperature.

(b) The same technic was repeated after the serum had been heated at 55 C. for half an hour (inactivation).

(c) One c.c. fresh active serum + 0.5 c.c. iodin reagent; the results were usually read after standing twenty-four hours at room temperature.

(d) The same technic was repeated after the serum had been heated at 55 C. for half an hour.

(e) Two-tenths c.c. fresh active serum + 2.5 c.c. iodized petrolatum; the results were read after from fifteen to twenty-four hours at room temperature.

(f) Same technic repeated after the serum had been heated at 55 C. for half an hour.

(g) A Wassermann reaction was conducted with each serum after inactivation, with three different antigens, namely, an alcoholic extract of human heart reenforced with cholesterin; an alcoholic extract of syphilitic liver and an extract of acetone-insoluble lipoids. All serums reacting positively with the three antigens were included and listed as Wassermann positive; those reacting negatively with all extracts were listed as Wassermann negative. In view of the frequent difficulty of establishing a reliable clinical diagnosis of syphilis I have adhered to my former plan of studying the Landau test from the standpoint of Wassermann positive and Wassermann negative serums.

RESULTS

(*a*) *With the Iodized Petrolatum Reagents.*—As stated in my previous paper, the addition of serum to this reagent in the proportions named results in the partial decolorization of the reagent after from fifteen to twenty-four hours in the majority of tests, regardless of whether the serum was from a syphilitic or nonsyphilitic person. Of 92 serums (52 Wassermann positive and 40 Wassermann negative) tested with this reagent, partial loss of color occurred in 75, or 81 per cent., with no distinction between Wassermann positive and negative serums; in 11 serums, or 12 per cent., there was complete or almost complete decolorization, and in 6, or 6 per cent., no change of color.

Cerebrospinal fluids, on the other hand, produced slight or no change in the color of the mixture, regardless of whether they were Wassermann positive or negative.

(*b*) *With Iodin Tetrachlorid of Carbon Reagent.*—The results observed with this reagent are summarized as follows:

1. Of 64 serums yielding *positive Wassermann reactions* and tested in a fresh active condition in amounts of 0.2 c.c. serum with 0.1 c.c. of reagent, 48, or 75 per cent., reacted positively as read at the end of four hours; at the end of twenty-four hours four serums became cloudy and thereby reduced the percentage of positive iodin reactions to about 69 per cent. These results tallied quite closely with those previously reported when 0.01 c.c. of the reagent had been used.

2. Of 84 serums reacting *negatively in the Wassermann reaction* and tested in a fresh active condition in amounts of 0.2 c.c. of serum with 0.1 c.c. of reagent, but 36, or 42.7 per cent., reacted negatively as read at the end of four hours. In my previous work, including 61 W [illegible] serums tested with 0.01 c.c. reagen [illegible] reacted negatively, so that with the larger amounts of reagent the percentage of false positive iodin reactions has been reduced about 13 per cent.

3. The important objection I raised, however, against the iodin test as a practical diagnostic procedure in that it yields a high percentage of falsely positive reactions, is confirmed in this second series of cases.

4. With 1 c.c. of serum and 0.5 c.c. of reagent the results as read at the end of twenty-four hours tallied quite closely with those observed when 0.2 c.c. of serum and 0.1 c.c. of reagent were used. With the larger amounts the reactions usually cannot be read at the end of four hours.

I have worked with other combinations of positive and negative serums and reagents and found 0.4 c.c. of serum with 0.2 c.c. of reagent quite satisfactory in that the quantities are larger and accordingly more easily read than those given by Landau, and the readings may be made after four hours, but the results were almost identical with those observed with the smaller amounts and I have not yet found a combination of serum and reagent that would yield more satisfactory results in the diagnosis of syphilis.

5. While Landau states that only fresh active serums should be used, I have tested serums at different times varying from a few hours to three days after bleeding and found practically no differences in the results. Likewise all serums were tested after heating at 55 C. for half an hour and the results were similar to those observed with active serum. With 82 per cent. of serums the results were identical, while 18 per cent. of serums reacting positively in an active condition were negative when tested after the process of heating or inactivation.

6. With cerebrospinal fluids the results were entirely unsatisfactory, as previously reported. Practically all fluids reacted alike, that is, the color persisted in the reagent collected in the bottoms of the test tubes and the supernatant fluids remained clear irrespective of whether they were Wassermann positive or negative. Of fourteen fluids tested, eight gave strongly positive Wassermann reactions and five reacted negatively, but as stated, all reacted in a similar manner when tested with iodin in carbon tetrachlorid and iodin in paraffin oil reagents.

7. The starch test for unbound iodin was applied by adding 0.5 c.c. of a 1 per cent. solution in distilled water. After a few minutes a blue color at the line of contact between serum and reagent is seen in the majority of tests, while in a few the reaction is quite marked or entirely absent. This test was applied to most serums after the four-hour interval and to the balance after the twenty-four-hour interval, at room temperature.

As an aid in differentiating positive from negative iodin reactions this starch test had failed to be of any value. Of 67 serums remaining clear or giving positive Landau reaction at the end of four hours, 48, or 71 per cent., gave a positive starch reaction, while of 33 serums giving a negative Landau reaction, 31, or 94 per cent., gave a positive starch reaction.

When 0.01 c.c. of iodin reagent is used with 0.2 c.c. serum as in my previous work the starch test is negative in the majority of instances, as in the series of 58 tests so conducted a faint starch reaction was apparent in but six, and four of these occurred in clear serums or positive reactions, according to Landau.

SUMMARY

To sum up, the iodin color test as conducted with the correct technic was found to have no practical value in the serodiagnosis of syphilis because of its irregular results as shown by the low percentage of correct positive reactions with Wassermann positive serums, and more especially by reason of the high percentage of false positive reactions with Wassermann negative serums.

THE ETIOLOGY AND EXPERIMENTAL PRODUCTION OF HERPES ZOSTER

PRELIMINARY NOTE *

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Head and Campbell[1] have shown that the peripheral manifestations in herpes zoster are due to lesions in the corresponding posterior root ganglia. The character of the lesions in the ganglia described by them and others and the symptoms suggest strongly a microbic origin of this disease. And recently Sunde[2] has demonstrated gram-staining diplococci in a hemorrhagic gasserian ganglion in a case of ophthalmic herpes in an old man who died of a bronchopneumonia three and one-half days after the appearance of the herpes. The evidence, therefore, that bacteria are the cause of the lesions in the ganglia is rather direct, but so far herpes has not been produced experimentally in animals by intravenous injection.

Rosenow[3] has demonstrated that streptococci from the appendixes in appendicitis, from the walls of the gallbladder and the center of gallstones in cholecystitis, from the depths of ulcers of the stomach and duodenum, from the articular exudate in rheumatic arthritis, and the organisms from the subcutaneous nodes in erythema nodosum tend to localize electively in the tissues from which they are isolated. He has also shown that the probable infection atria (tonsils, pyorrheal pockets, suppurating sinuses, etc.) in these diseases harbor streptococci and other organisms showing similar elective localization when injected intravenously into rabbits.

It occurred to us that the presumable infection atrium in cases of herpes zoster might contain streptococci or other bacteria having elective affinity for the posterior root ganglia, and experiments were made accordingly.

Herpes of the skin, tongue or lips and lesions in the corresponding ganglia have been produced in a large number of rabbits and other animals (forty-six) by intravenous injection of the bacteria in emulsions of extirpated tonsils, of mixed cultures and pure cultures of streptococci obtained from tonsils or pyorrheal pockets, and of streptococci in pure culture from the spinal fluid. A number of animals, usually those showing marked herpes of the skin, showed also herpetiform lesions of the viscera, and in these the ganglia of the vagus or sympathetic nerves were found to be hemorrhagic. The tendency of these organisms to localize electively in the ganglia is illustrated by the fact that herpes developed in six guinea-pigs following intraperitoneal injection. The streptococci isolated from the tonsils and other places after recovery, those cultivated on artificial mediums for a time, and those passed through a series of animals no longer show this peculiar property. Broth culture filtrates, proved not to contain streptococci, failed to produce the lesions.

The lesions of the ganglia consist chiefly of hemorrhages and round-cell infiltration, usually most marked just beneath and outside the capsule and surrounding areolar tissue and along the sheath of the corresponding nerve. The blood vessels commonly show marked congestion, and at times are completely or partially filled with mononuclear and polynuclear leukocytes. Gram-staining diplococci and short chains have been found to occur quite constantly in the areas showing lesions in and about the ganglia, but not in the normal portions. Cocci have been found in these lesions, by cultures and sections, when absent in the blood and other tissues. The peripheral lesions in the experimental disease in the animals which recovered, just as in man, have not contained the organisms. Most of the eleven cases studied were typical thoracic herpes zoster, three were cases of recurring herpes, one a marked herpes of the lips and left side of the cheek during pneumonia, and one a mild herpes during an attack of an ordinary cold.

The following experiments will serve to illustrate the results obtained:

Experiment 1.—D. 220, a small white and black dog, was injected intravenously, February 20, with the growth from 45 c.c. of ascites-dextrose-tissue broth of a pure culture of a rather long-chained green-producing streptococcus from the tonsils removed on the second day after the onset of a typical attack of herpes zoster.

February 21: Seems ill and keeps rubbing the left side of head with front paw.

February 22: Seems better, but still rubs gently and slowly left side of head.

February 23: Seems about the same as yesterday. Chloroformed and examined at once. The under surface of the skin of left side of forehead shows a number of hemorrhagic vesicles from which exudes a large amount of serosanguineous fluid when cut across. A few similar lesions are found in the subcutaneous fat over lumbar region on the right side corresponding to the last dorsal vertebra. Under the vesicle on left side of head the periosteum is hemorrhagic over an area 0.5 by 1 cm. The left gasserian ganglion shows a small hemorrhagic area. The spinal cord was not removed. The spinal fluid is turbid and contains a moderate number of large and small mononuclear cells. No other gross lesions.

February 24: *Cultures in ascites-dextrose broth from spinal fluid and hemorrhagic ganglion give pure cultures of short-chained streptococcus, while those from the blood and joint are sterile.*

Experiment 2.—D. 242, a small white dog, was injected intravenously, March 4, with the growth from 40 c.c. of ascites-dextrose-tissue broth of the primary, pure culture of the spinal fluid in a case of typical herpes zoster.

March 6: Seems well. Chloroformed. Marked herpes of inner angle of right eye and of the upper lip. Rather large amount of turbid spinal fluid. Marked hemorrhage of right gasserian ganglion; the left appears normal. No other lesions.

March 8: Cultures from spinal fluid and hemorrhagic ganglion show moderate number of grayish-green colonies of streptococcus only on blood agar plates. The blood, joint fluid and opposite ganglion are sterile.

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* From The Memorial Institute for Infectious Diseases.

[1] Head and Campbell: Brain, 1900, xxiii, 351.

[2] Sunde: Deutsch. med. Wchnschr., 1913, xxxix, 849.

[3] Rosenow, E. C.: Jour. Infect. Dis., 1915, xvi, 240; The Newer Bacteriology of Various Infections as Determined by Special Methods, The Journal A. M. A., Sept. 12, 1914, p. 903; Bacteriology of Cholecystitis and Its Production by Injection of Streptococci, Nov. 21, 1914, p. 1835.

CHOLESTERINEMIA AND THE WASSERMANN REACTION *

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Cholesterin has most important biologic applications: cholesterin and the lipoids are seriously involved in the specific blood tests, and it has been said that "no earnest discussion of serologic work can be undertaken today without reference to them." [1] It is probable that no earnest serologic work today can be properly explained or correctly interpreted without due regard to the cholesterin and lipoid content of the blood. It is the question of the correct interpretation of the Wassermann reaction which first interested me in this work.

Recent work on the Wassermann reaction has tended, first, toward the standardization of this very important clinical test: second, toward the increase in its delicacy, and third, toward the production of a suitable antigen. A review of the literature of the past year or more will show, at a glance, that it is cholesterin with which most, if not all investigators are working. Some of the more recent subjects are entitled as follows:

1. "Cholesterine Reaction in Serodiagnosis of Lues." [2]
2. "Use of Cholesterinized Antigens in The Wassermann Reaction." [3]
3. "Cholesterinized Antigens." [4]
4. "The Use of Cholesterine Antigen in the Wassermann Reaction." [5]
5. "A Method Developed for Obtaining a Standard Wassermann Antigen." [6]
6. "Serum Cholesterol and The Wassermann Reaction." [7]
7. "A Comparison of Cholesterinized and Non-Cholesterinized Artificial Antigens in The Wassermann Reaction." [8]
8. "Modified Technique For Wassermann Reaction." [9]
9. "Antigens in Wassermann Reaction." [10]
10. "Cholesterine-Heart Antigen Proposed by Walker and Swift." [11]

Other papers have undoubtedly been written on the subject, but the ten mentioned clearly show that cholesterin is receiving considerable attention in our newer researches on the Wassermann reaction. A great number of serologists, however, especially as concerns the Wassermann reaction, have failed to take into consideration those apparently uninteresting and unimportant clinical manifestations which, in the great majority of instances, accompany cases of syphilis. We practically never see a case of syphilis which does not at the same time manifest some other clinical abnormality not always dependent on syphilis. I refer to such clinical abnormalities as fever, nephritis, arteriosclerosis, jaundice, etc.

I am not in a position to discuss the various methods which we now see employed in doing the Wassermann test; but if we are to go ahead studying the influence which cholesterin plays in the Wassermann reaction (and by the Wassermann reaction I mean the biologic reaction of that name), must we not take into consideration the pathologic variations in the cholesterin content of the blood? Up to the present time considerable work has been done to determine in which pathologic conditions the cholesterin content of the blood varies,[12] and we have sufficient data safely to say when we can expect either a hypercholesterinemia or a hypocholesterinemia.[13] That all this newer work on the Wassermann reaction should have gone on without considering the cholesterin content of the blood in individual cases is surprising.

We have arbitrarily designated the intensity of the Wassermann reaction numerically: 1 +, 2 +, 3 + and 4 +, depending on the degree of hemolytic inhibition. Why should one case of syphilis show a 1 + reaction and another case a 4 + reaction? Duration of the disease and severity of infection, or effect of treatment, do not always explain the differences in the intensity of the reaction. Is a man with a 1 + reaction less syphilitic than one with a 4 + reaction? Are such experiences as the following unheard of?

1. A case infected thirty years ago with a 4 + and never treated.
2. A case infected twenty years ago with intermittent treatment during this period, with a 4 +.
3. A case of one year's duration, with moderately severe treatment with a 4 +.
4. A case of 4 + vigorously treated, and after two years the reaction is still 4 +.
5. A case in which the reaction increases in spite of proper treatment.
6. A case in which the reaction decreases without treatment.

What do these discrepancies mean? Do they mean anything? Is there something in the blood, something whose quantity varies, responsible? Is it unreasonable to assume that a case is or is not syphilitic, and that the intensity of the Wassermann reaction is determined not by how much syphilis is in the individual's system but by how much cholesterin, or lipoids, which are seriously involved in the reaction, are in that individual's blood serum? The reverse argument that *syphilis affects the lipoid and cholesterin content of the blood does not hold.* I have examined a sufficient number of serums to convince me of that fact. There is no definite relation between cholesterinemia and the present-day numerically interpreted intensity of the Wassermann reaction.

We have been led to believe that cholesterin materially influences the Wassermann reactions. But there seems to be a difference of opinion as to the value of using an antigen to which cholesterin has been added. Some of the conclusions of investigators in this field are as follows:

1. C. C. W. JUDD:
    (*a*) "Cholesterinized antigens do not yield an appreciable number of nonspecific reactions."

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* Read before the Society for Serology and Hematology, New York, April 2, 1915.

[1] Reflections Regarding Cholesterol, editorial, THE JOURNAL A. M. A., Feb. 21, 1914, p. 620.

[2] Matlack, F. S.: Cholesterine Reaction in Serodiagnosis of Lues, Month. Cyc. and Med. Bull., No. 7.

[3] Thomas, B. A., and Ivy, R. H.: The Use of Cholesterinized Antigens in the Wassermann Reaction, THE JOURNAL A. M. A., Jan. 30, 1914, p. 363.

[4] Thompson, Loyd: Cholesterinized Antigens, THE JOURNAL A. M. A., May 9, 1914, p. 1458.

[5] Field, Cyrus W.: The Use of Cholesterin Antigen in the Wassermann Reaction, THE JOURNAL A. M. A., May 23, 1914, p. 1620.

[6] Field, Cyrus W.: A Method Developed for Obtaining a Standard Wassermann Antigen, Arch. Int. Med., May, 1914, p. 790.

[7] Weston, Paul G.: Serum Cholesterol and the Wassermann Reaction, Jour. Med. Research, xxx, No. 3, p. 377.

[8] Judd, Charles C. W.: A Comparison of Cholesterinized and Non-Cholesterinized Artificial Antigens in the Wassermann Reaction, THE JOURNAL A. M. A., July 25, 1914, p. 313.

[9] Orkin, G.: Modified Technique for Wassermann Reaction, Berl. klin. Wchnschr., li, No. 15, p. 667.

[10] Owen, R. G., and Snure, H.: Antigens in Wassermann Reaction, Jour. Michigan Med. Soc., xiii, No. 7.

[11] McClure, C. W.: Cholesterine-Heart Antigen Proposed by Walker and Swift, Jour. Med. Research, xxx, No. 3.

[12] Henes, E., Jr.: The Cholesterine Content of Human Blood under Various Pathological Conditions, Deutsch. Arch. f. klin. Med., iii, Nos. 1 and 2.

[13] Henes, E., Jr., Cholesterinemia, Proc. New York Path. Soc., xiii, No. 7.

(*b*) "Cholesterinized antigen, though amenable to the influence of treatment, is less susceptible to extinction by therapeutic measures."

(*c*) "Cholesterinized antigens detect many luetic cases which do not yield positive results with the Noguchi reaction."

2. B. A. Thomas and R. H. Ivy:

(*a*) "We conclude that with cholesterinized antigens, varying degrees of inhibition of hemolysis may be obtained in serums from many conditions other than syphilis, and in normal persons."

3. Loyd Thompson:

(*a*) "If the reagents are titrated properly, nonsyphilitics will not give positive results."

(*b*) "Cholesterinized antigen is slightly more delicate than other antigens, and is especially valuable in determining when a cure has been effected, as a positive with it persists after treatment for a longer time than with other antigens."

4. Cyrus W. Field:

(*a*) "Cholesterin seems to increase the velocity of the reaction."

5. I. Chandler Walker:

(*a*) "Cholesterinized alcoholic extracts of human heart have a specific fixation property with syphilitic serums, and they do not give nonspecific fixation with nonsyphilitic serums, provided the reagents are properly titrated."

(*b*) "The serum of syphilitic patients contains a 'something' for which cholesterin has a definite fixation power in the presence of complement."

6. Paul G. Weston:

(*a*) "The cholesterol content of the serums examined bore no constant relation either to the Wassermann reaction or the gross appearance of the serum."

I am not in a position to criticize these conclusions, except to say that I have had serums with astoundingly high measures of cholesterinemia in which the Wassermann reaction was negative; again, inasmuch as P. G. Weston confined his examinations to the bloods of normal individuals and those of paretics, I am inclined to doubt the justification for his conclusion.

It is apparent, nevertheless, from the review just made, that cholesterin can, and seemingly does, influence the Wassermann reaction. May I therefore ask the following questions?

1. Has the Wassermann reaction in a pregnant woman ever changed from 2 + to 4 + during the course of the pregnancy despite treatment?
2. Has the 4 + reaction of a chronic nephritic ever changed to 2 + when that patient became uremic and died even without antisyphilitic treatment?
3. Is the Wassermann reaction influenced at all by fever?
4. Why does an icteric serum frequently inhibit hemolysis?
5. Has the intensity of the reaction ever increased in a convalescent case of typhoid fever?
6. Do not old syphilitics, old with endarteritis and arteriosclerosis, resist treatment, that is, do they not persist with their strong reaction?

I cannot answer these questions; perhaps serologists can. But if we may assume for a moment that the cholesterinemia is responsible for the intensity of the reaction in individual cases, these questions can not only be answered, but I think, can be correctly answered. For in each of the hypothetical cases mentioned, changes in the cholesterin content of the blood could explain these different Wassermann results. Why should the cholesterin content of the blood be absolutely disregarded in interpreting the Wassermann reaction?

Among the many hundreds of cases in which I have made quantitative cholesterin determinations, obtaining the material almost exclusively from the medical and surgical services, and the dispensary patients of the German Hospital, I have about 225 in which the Wassermann reaction was also done.[14] Dr. A. L. Garbat, the attending serologist at the German Hospital, is responsible for the Wassermann results, having used the Citron-Wassermann method, noncholesterinized alcoholic extract of guinea-pig's heart, as an antigen.[15]

On most of the ambulatory cases of the dispensary, it was impossible to obtain full clinical data; but on all of the hospital cases, those data are complete, and especially those that are of importance as influencing the cholesterin content of the blood.

Tabulated briefly, they include the following:

Forty-six cases with 4 + reactions: cholesterin content of blood varying between 0.0007 and 0.00463 grams per cubic centimeter serum, with an average of 0.00234 grams.

Three cases with 3 to 4 + reaction; cholesterin, 0.00117 to 0.00160, average 0.00133.

Twenty-nine cases with 3 + reaction: cholesterin, 0.0007 to 0.00907, average 0.00202.

Thirty-one cases with 2 + reaction: cholesterin, 0.00074 to 0.00463, average 0.00238.

Nineteen cases with 1 + reaction: cholesterin, 0.0004 to 0.00399, average 0.00202.

Eighteen cases with ± reaction: cholesterin, 0.00097 to 0.00262, average 0.00174.

Seventy-nine cases with negative reaction: cholesterin, 0.000501 to 0.00621, average 0.00225.

It will be noted that of these 225 cases, seventy-nine had negative and 146 positive Wassermann reactions. The cholesterinemia in the negative cases averages 0.00225, and in the positive, 0.00196. Looked at collectively, these figures probably do not mean very much; but when one looks at individual cases, the figures are far more interesting.

In Table 1 are presented a few cases with positive Wassermann reactions, their cholesterinemia, and the coincident clinical conditions, which in my opinion explain the cholesterinemias regardless of the luetic infection.

TABLE 1.—CASES WITH POSITIVE WASSERMANN REACTIONS, THEIR CHOLESTERINEMIA, AND CLINICAL CONDITIONS

Case No.	Wassermann	Cholesterinemia gm. per c.c. serum	Coincident Clinical Condition
1	4 +	.00247*	Obliterating endarteritis
2	4 +	.00381	Incomplete abortion
3	4 +	.00374	Chronic nephritis
4	4 +	.00251	Angina pectoris
5	3 +	.00265	Incomplete abortion
6	1 +	.00378	Pregnancy
7	1 +	.00385	Chronic nephritis

* It is to be remembered that the average *normal* cholesterinemia is about 1.5 gm. per cubic centimeter of serum.

Coming, as this paper does, with a questioning finger pointed at the Wassermann reaction as today interpreted and relied on from a therapeutic point of view, the following questions arise:

If cholesterinized antigens influence the Wassermann as we have shown they do, then I ask:

Why is not the 4 + with cholesterinemia of 0.00247 a stronger reaction than the 4 + with cholesterinemia of 0.00381? Does not the difference in the blood cholesterin in these two cases have some effect on the Wassermann reaction? We call them both 4 +.

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[14] The total includes examinations as late as Feb. 1, 1915.

[15] Citron, J. B.: Immunity, Methods of Diagnosis and Therapy and Their Practical Application, translated by A. L. Garbat, Ed. 2, Philadelphia, P. Blakiston's Son & Co., 1914.

Furthermore, in Table 2 are cited cases with equally strong Wassermann reactions, but with widely varying cholesterinemias. Explaining the cholesterinemia by the coincident clinical conditions which, unfortunately, I was unable to obtain in detail in these particular cases, I present this series (Table 2).

TABLE 2.—CASES WITH EQUALLY STRONG WASSERMANN REACTIONS, BUT WIDELY VARYING CHOLESTERINEMIAS

Case No.	Wassermann	Cholesterinemia
8	4 +	.00147
9	4 +	.00390
10	4 +	.00102
11	4 +	.00463
12	4 +	.00131
13	4 +	.00355

Why is not the 4 + of Case 8 much stronger than the 4 + of Case 9, or that of Case 10 much stronger than that of Case 11? Why, with such decided differences in the cholesterinemia, do we designate all the Wassermann reactions 4 +? Why are not the cholesterinemias of Cases 9, 11 and 13 responsible for the degree of hemolytic inhibition which we designate as 4 + and not the syphilis?

TABLE 3.—CASES OF HIGHER CHOLESTERINEMIA WITH THREE PLUS THAN WITH FOUR PLUS REACTIONS

Case No.	Wassermann	Cholesterinemia
14	4 +	.00360
15	3 +	.00360
16	4 +	.00160
17	3 +	.00233
18	4 +	.00137
19	3 +	.00408

In the series of Table 3, in which the 3 + reactions have a higher cholesterinemia than the 4 + reactions, why are not the reactions of Cases 15, 17 and 19 what they are because of the hypercholesterinemia in these cases? With marked differences in the cholesterinemia, I should think we would have more marked differences in the interpretation of the Wassermann reaction. If such calculation is permissible, a 4 + reaction is 25 per cent. stronger than a 3 +, but the cholesterinemia of Case 19 is 300 per cent. higher than that of Case 18. So why not call the reaction of Case 19 something decidedly lower than 3 +? Why not 1 +?

TABLE 4.—CASES OF HIGHER CHOLESTERINEMIA WITH FOUR PLUS THAN WITH ONE PLUS REACTIONS

Case No.	Wassermann	Cholesterinemia
20	4 +	.00307
21	1 +	.00127
22	4 +	.00390
23	1 +	.00125
24	4 +	.00300
25	1 +	.00100

In the series of Table 4, in which, vice versa, the 4 + reactions have a decidedly higher cholesterinemia than the 1 +, why are not the 1 + reactions with a normal cholesterinemia just as strong as the 4 + with a hypercholesterinemia? Biologically, there is a difference, of course; but are we correct when we make such a big clinical difference in our interpretation? Do we do ourselves justice from a therapeutic and a prognostic point of view? Let us say, for example, that Case 22 with a 4 + reaction has gallstones which account for the very high cholesterin figure of 0.00390. Aware, or not aware of the gallstones, but mindful of the hypercholesterinemia, are we not justified in believing that our 4 + patient is just as nearly cured of his syphilis as is our 1 + patient?

These cases, I think, show that there ought to be at least a reasonable doubt as to our justification in arbitrarily numbering our Wassermann reactions as we do.

Continuing on the assumption that serum cholesterin influences the Wassermann reaction just as a cholesterinized antigen does, the following hypothetical cases are far from unreasonable:

CASE 1.—A married woman with syphilis becomes pregnant and, let us say, aborts at the sixth month. Experience has shown us that during these six months the quantity of serum-cholesterin constantly increases above normal, and at the termination of pregnancy slowly returns to normal. Why, if cholesterin influences the biologic reaction which we call the Wassermann reaction, should we not take the serum-cholesterin into consideration?

CASE 2.—Again, a patient with syphilis contracts typhoid fever, and the usual course of hyperpyrexia is run; during that fever period, the serum-cholesterin is decidedly diminished, and when convalescence sets in, rises considerably above normal, and then slowly comes back to normal. If, as Pighini says, cholesterol may be the chief constituent of the Wassermann reaction, why should not fluctuations in the cholesterinemia be taken into consideration when interpreting this reaction? Bürger and Beumer assert that the outcome of the Wassermann reaction is not dependent on the presence of simply more or less of cholesterol or lecithin in the serum. My experience bears out their assertions. Hypercholesterinemia in itself, in my examinations at least, does not give a positive Wassermann reaction. I have had a few cases with exceedingly high measures of cholesterinemia with a negative reaction.

CASE 3.—A patient with syphilis, with a 2 + positive Wassermann reaction, under treatment, during the course of observation develops a cirrhosis hepatis and becomes markedly jaundiced. The Wassermann test done in this icteric serum shows a reaction stronger than 2 +. Jaundice, no matter from what cause, is accompanied by a decided increase in the serum-cholesterol above the normal. Why, under these circumstances, is not the hypercholesterinemia responsible for the increased intensity in the Wassermann reaction, and why is it not accountable for the frequent fixation of complement by icteric serums? On the other hand, if in such a hypothetical case as outlined, with jaundice present, the Wassermann should stay 2 +, would it not seem reasonable on this basis to consider that our therapy had favorably influenced the syphilis, and notwithstanding the fact that the Wassermann had stayed 2 + (as we read it today), the reaction should be interpreted as something less than 2 +?

CASE 4.—In a case which, by the way, is under treatment by a colleague of mine, there is a 2 + Wassermann. This reaction continues positive despite efficient and prolonged treatment. The man's serum happens to contain 0.00463 gm. of cholesterin per cubic centimeter. I do not know what is producing this hypercholesterinemia; perhaps it is due to arteriosclerosis. But why is not the hypercholesterinemia responsible for the fact that the Wassermann does not go below 2 +? *Is not this man entitled to a lower interpretation?* It might be argued that the syphilis is responsible for the sclerosis and therefore for the hypercholesterinemia. But I have many cases of arteriosclerosis with negative Wassermann reactions and marked hypercholesterinemias.

CASE 5.—Another actual case is that of a young married woman, aged 21. One year ago she had a 4 + Wassermann. Since that time she has been vigorously treated, and yet the reaction stays at 4 +. The cholesterinemia in this case is 0.00287 gm. per cubic centimeter of serum. Is not this hypercholesterinemia keeping the Wassermann at 4 +, and is not this patient entitled to a lower interpretation?

CASE 6.—Another actual case is that of a man aged 39, suffering from chronic nephritis and marked secondary anemia. The Wassermann reaction in this case is ± and the cholesterinemia 0.00183 gm. per cubic centimeter of serum. In the absence of a luetic history, we look with doubt on this Wassermann reaction, but the biologic reaction did show some inhibition of hemolysis. Some time later, this man developed a fever of 102 F., a clinical condition which reduces the measure of cholesterinemia; it was reduced to 0.00108, almost 80 per cent., and the biologic test which we call the Wassermann reaction was negative at the second examination.

In diabetes, nephritis,[16] cholelithiasis,[17] icterus from any cause, obesity and arteriosclerosis, in which profound changes in the cholesterin content of the blood exist, are we to ignore just that blood constituent which today serologists are most interested in relative to the Wassermann reaction? It is just because of this fluctuating cholesterinemia under pathologic conditions — a fluctuation that a rather large experience has taught us is pretty constant — that I present my ideas on the subject of the Wassermann reaction. The subject of cholesterinized antigens has called forth these ideas.

SUMMARY

1. The cholesterin content of the blood varies considerably under various pathologic conditions. Placing the normal cholesterinemia at 0.00150 gm. per cubic centimeter of serum, variations between 0.0004 and 0.0102 gm. per cubic centimeter have been encountered, the latter, as far as I know, the highest figures ever recorded.
2. We are in a position to know when a hypocholesterinemia or a hypercholesterinemia can be expected.
3. The addition of cholesterin to the antigen of the Wassermann reaction increases the rapidity and intensity of hemolytic inhibition.
4. Serologists have failed to take into consideration the pathologic variations of the blood cholesterin in interpreting the Wassermann reaction.
5. Syphilis, in itself, is not primarily responsible for a hypercholesterinemia.
6. Hypercholesterinemia, in itself, does not give a positive Wassermann reaction.

CONCLUSIONS

Conclusions, from a work of this sort, must of necessity be submitted with reservation. While acknowledging my inability to prove nothing more than the facts which I have presented, I nevertheless offer the following theoretical conclusions:

The lipoid content of the blood serum determines the intensity of the biologic reaction employed in the diagnosis of syphilis. Cholesterinemia and lipoidemia have been shown to follow parallel curves.[18] We are justified in assuming then that cholesterin determines the intensity of this reaction. Having been shown that cholesterin in the antigen does intensify the Wassermann reaction, why should the cholesterin of the blood serum be utterly disregarded? Just because the cholesterinemia shows such marked fluctuations under various pathologic conditions, and such marked fluctuations in the course of certain diseases (infectious diseases, nephritis) and certain physiologic processes (pregnancy), the serum cholesterin must be taken into consideration in the interpretation of the Wassermann reaction, whether cholesterinized or noncholesterinized antigens are used.

The nearer the blood cholesterin approaches the normal, in any given case, the stronger is the Wassermann in that case. For example: A 4 + Wassermann with a normal cholesterinemia (not taking conditions of hypocholesterinemia into consideration) should be interpreted, according to our present-day standards, as the strongest reaction. A 4 + reaction with a hypercholesterinemia is a weaker reaction than a 4 + with a normal cholesterinemia. A 4 + reaction with a marked hypercholesterinemia is *no stronger than a 2 +* with a moderate hypercholesterinemia. A 4 + reaction in a chr[illegible] less than a 4 +. It is the [illegible] icteric serum that often interferes with the reading of a Wassermann reaction. Failures or discouragements in our antiluetic therapy, as judged by the Wassermann reaction, may be due to certain hypercholesterinemias in individual cases. Surely there ought to be some difference in the Wassermann reactions of bloods which show respectively a cholesterinemia of 0.0007 and 0.00463 gm. per cubic centimeter of serum; and yet, these two actual extremes gave a 4 + reaction — and we call them the same, and judge them *in the same way.*

Finally, our interpretation of a positive Wassermann reaction would be much more accurate if we, jointly, would take the cholesterinemia into consideration. That does not, of necessity, mean that a quantitative cholesterin determination should form part of the Wassermann reaction; but those clinical factors which we know influence the cholesterinemia should most certainly be recognized and considered.

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[18] 18. Widal, Weill and Laudat: La Lipémie des brightiques, Semaine méd., Nov. 6, 1912.

TAENIA SAGINATA

A CASE PRESENTING STRUCTURAL ABNORMALITIES AND ASSOCIATED WITH SPURIOUS PARASITISM IN AN INFANT

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Assistant Zoologist, U. S. Bureau of Animal Industry
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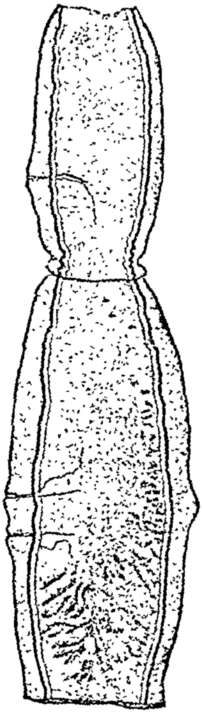
The tapeworm segments were passed by a Polish child said to be from 14 to 18 months old. This seems like a very young age at which to be harboring tapeworms resulting from the eating of underdone beef and, as a matter of fact, such cases are rare. They are perhaps to be attributed to the use of scraped raw beef, the treatment advocated by Weiss in cases of chronic diarrhea, but as children are fed in many households on exactly the same food as the adults, some of these cases may result from the ingestion of very rare steak, roasts, etc.

Accompanying the tapeworm segments from the infant was a beetle larva, said to have been passed at the same time, which I identified as *Tenebroides mauritanicus,* an identification which was confirmed by Mr. A. E. Schwartz of the U. S. National Museum. This beetle is commonly found in cereals, flour, old bread, etc., and is, of course, not parasitic. It is frequently sent in to entomologists, according to Mr. Schwartz, with a history of being passed in the feces. In such cases there are two evident possibilities: That the larva is found in the feces as a result of its occurrence in the vessel used or getting into the feces in some such way after passage; or that the larva is ingested in food, such as breakfast food, old bread, etc., and passes the digestive tract dead but undigested. It is well known that various diptera, alive or dead, may pass through the alimentary tract undigested, and there appears to be no reason why the chitinous structure of a coleopterous larva should not resist digestion equally well. I have collected such larvae from the stomach of rodents, *Sciurus aberti mimus,* but of course these larvae had not been subjected to the digestive action of the entire alimentary tract. There is every likelihood that the resistant undigestible chitinous structure would be unbroken in the case of a larva eaten by a baby. It might also be noted that the presence of such a larva in the feces fits in well with the carelessness in regard to a child's diet suggested by the presence of *Taenia saginata* at so early an age.

The tapeworm most commonly found in children is *Hymenolepis nana. Hymenolepis diminuta* has been found in suckling infants. According to Grimm,[1] *Taenia solium* has been reported by von Pardo[2] in an infant 5 months old. *Taenia saginata* has been reported by Comby[3] from an infant 9 months old, which had been fed raw beef juice. Westhoff[4] reports *Taenia saginata* from an infant 8 months old, and notes that the child had been fed a half pound of minced beefsteak daily. Two cases have been reported in which tapeworms are recorded from children 5 days old. In one case, European, recorded by Mueller,[5] the tapeworm reported as *Taenia solium,* was said to be 1½ feet long. In the other case, reported for the Long Island Hospital, New York, by Armor,[6] gravid segments of *Taenia solium* are said to have been passed after the administration of calomel following trismus on the fourth day. No further evidence of tapeworm was seen during the child's first year. The mother of the child was found to have a tapeworm, *Taenia solium.* Reports of cases of tapeworm in five-day old infants must be regarded as apparently due to error or confusion of some sort.



Taenia saginata, showing duplication of genital pores in a segment.

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WITH REPORT OF FIFTEEN CASES

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While it would be impossible to make any hard and fast rule in every case, in general the indications and contraindications may be summed up as follows:

INDICATIONS

The ideal case is one in which the disease is limited to the upper portion of one lung, an acute progressive condition, generally with signs of softening, but which has not responded to the usual therapeutic measures.

The treatment is indicated in cases with marked involvement of one lung, with a moderate infiltration of the opposite lung, preferably the apex; râles may or may not be present.

The treatment in cases of severe and uncontrollable hemorrhage has often given brilliant results.

Some cases of pulmonary tuberculosis, complicated by pleurisy with effusion, offer an excellent opportunity of giving pneumothorax treatment. Lung abscesses and bronchiectasis are occasionally benefited.

Complications, such as tuberculous laryngitis, may improve if the patient is doing well otherwise. In one of our cases a deep ulceration of the left ventricular band healed entirely, and the infiltration of the left false cord, which had covered the true cord for months, entirely absorbed and retracted. We had been treating this larynx with intralaryngeal application of liquor formaldehydi, but no marked improvement was noticed until the patient commenced gaining under the collapse treatment.

We would not hesitate to try the lung compression in hopeless cases complicated by tuberculous enteritis. The symptoms referable to the lungs will improve in proportion to the extent of the lung collapse. Tuberculosis of the intestines is, however, a grave complication, whether the treatment is given or not. Some writers assert that the enteric complication may improve or even be cured if the patient is doing well otherwise; our patients who developed tuberculous enteritis after the treatment was begun lost steadily, owing to the progressive intestinal involvement, although the symptoms referable to the lungs improved.

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The chief contraindications are as follows: An extensive or progressive lesion in the opposite lung to the one to be collapsed, or disseminated miliary tuberculosis would preclude the gas treatment. The treat-this Wassermann reaction, but the biologic reaction did show some inhibition of hemolysis. Some time later, this man developed a fever of 102 F., a clinical condition which reduces the measure of cholesterinemia; it was reduced to 0.00108, almost 80 per cent., and the biologic test which we call the Wassermann reaction was negative at the second examination.

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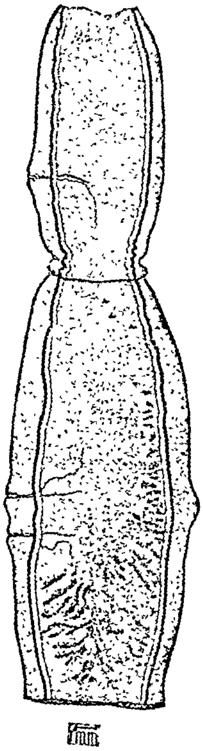
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While it would be impossible to make any hard and fast rule in every case, in general the indications and contraindications may be summed up as follows:

INDICATIONS

The ideal case is one in which the disease is limited to the upper portion of one lung, an acute progressive condition, generally with signs of softening, but which has not responded to the usual therapeutic measures.

The treatment is indicated in cases with marked involvement of one lung, with a moderate infiltration of the opposite lung, preferably the apex; râles may or may not be present.

The treatment in cases of severe and uncontrollable hemorrhage has often given brilliant results.

Some cases of pulmonary tuberculosis, complicated by pleurisy with effusion, offer an excellent opportunity of giving pneumothorax treatment. Lung abscesses and bronchiectasis are occasionally benefited.

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CONTRAINDICATIONS

The chief contraindications are as follows: An extensive or progressive lesion in the opposite lung to the one to be collapsed, or disseminated miliary tuberculosis would preclude the gas treatment. The treatment would not be justifiable in patients even though far advanced who are doing well under the usual therapeutic measures. Generally, basal lesions in the opposite lung are contraindications and are less favorable in the collapsed lung. Endocarditis and nephritis would lessen the chances of recovery in proportion to their severity. While dense pleural adhesions could not, strictly speaking, be considered contraindications, they are nevertheless the chief cause of a large percentage of failures.

TECHNIC

The Floyd-Robinson apparatus is the one used by us. It is very simple and easy to operate. It being determined to collapse a lung in a selected case, the patient is given beforehand one-eighth grain of morphin hypodermically for the first, rarely, for the subsequent injections.

Factors Which Should Be a Guide in Selecting the Point of Puncture.—An area is chosen as far away as possible from the original site of the disease, as here there are less likely to be found pleural adhesions. The physical signs are very often misleading. We endeavor to find an area where there is good lung resonance, good breathing, no adventitious sounds, preferably in the seventh or eighth interspace, scapular line, or at any point between the anterior axillary line and the scapular line. Efforts to find a free pleural space are often a failure, and frequent attempts have to be made in different places before a free space is found. We have often failed where by percussion and auscultation we had reason to believe we would be successful, and vice versa.

Position of the Patient.—This will necessarily vary according to the point of election. The patient lies on the side, with the lung to be collapsed uppermost. A pillow is placed in the axilla of the side on which the patient is reclining. This facilitates the widening of the intercostal space.

Preparation of the Skin.—After being properly sterilized, a small area of the skin is painted with tincture of iodin and the excess removed with alcohol.

Cocainization.—An all glass syringe is used, with a platinum needle just long enough (1 inch) to pass through the parietal pleura. We have found that 2 c.c. of a 0.25 per cent. novocain solution gives excellent results. The index and middle fingers of the left hand are placed on the upper border of the rib. A large sized wheal is made in the skin between the ribs. The tissues are then carefully cocainized, waiting until the structures in advance of the needle are thoroughly cocainized before advancing the needle farther. When the parietal layer of pleura is reached, the patient often feels a slight pricking sensation, and here we use the novocain solution freely. The structures from without inward offering resistance to the needle are as follows: the skin; external intercostal fascia, very dense; middle intercostal fascia, very little resistance; internal intercostal fascia and pleura, quite dense and generally perceptible resistance; when the pleura is thickened, marked resistance. A small puncture is now made through the epidermis and the dense external intercostal fascia with a cataract knife, and we are now ready to introduce the gas needle. The needle is held in the hollow of the right hand, between the thumb and index finger, and the tip of the index finger is pressed against the chest wall in order to have the needle under perfect control. With the gas needle we can readily determine the different layers of tissue through which it is passing, and it often passes through them with an audible snap.

The needle having pierced the external and middle intercostal fascia, we are now obliged to proceed cautiously as we approach the internal intercostal fascia and the costal pleura. The rubber tubing, having been previously connected with the needle, we now pull out the obturator and refer frequently to the manometer reading. When the needle rests against the costal pleura, a very slight oscillation can be seen, but by advancing the needle very slightly, if there are no pleural adhesions, a good free space may be observed, giving a reading, say from — 4 to — 10 cm., or — 6 to — 12 cm., actual reading. The negative reading is naturally greater during inspiration than expiration. If there are slight pleural adhesions, the reading may not be more than from — 2 to — 4 cm.

A suitable space having been found, we now close the cock leading to the manometer and slowly introduce 50 c.c. of nitrogen gas, the gas being warmed by placing the middle coils of rubber tubing in a basin of hot water; then shutting off the gas, we again consult the manometer carefully, and so on until the gas needed for the individual case is given. In new cases it is far better to inject a small amount of nitrogen gas, say from 300 to 500 c.c., leaving a negative end reading, then give refills every three to five days until gradually a total collapse of the lung is obtained. This overcomes the danger and discomfort caused by displacing the heart and other organs too rapidly, and by allowing the heart time to accommodate itself to its new position. A large needle is used for the initial injection, a smaller one for the refills.

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The following are some of the complications that might follow the induction of artificial pneumothorax: Pleurisy with effusion may occur in as high as 50 per cent. of the cases. The cause of this is not clear; some writers believe that it is due principally to chilling of the body, others to faulty technic, and still others to the mechanical irritation of the layers of the pleura, due to the foreign body, nitrogen gas. The fluid in a large percentage of the cases is found to contain tubercle bacilli. This complication, though rarely serious, is an annoying one. The fluid persists for a long time, but generally should not be removed unless causing disturbing symptoms; the fluid may then be withdrawn and nitrogen gas introduced to take its place. Tuberculous pyopneumothorax occurs in a small percentage of these effusions, but does not necessarily give a bad prognosis under the expectant treatment. Some instances of secondary infections have been reported, in which cases the outlook, unfortunately, must be regarded as very serious.

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REPORT OF CASES

The following is a report of fifteen cases in which we were more or less successful, according to the degree of lung collapse.

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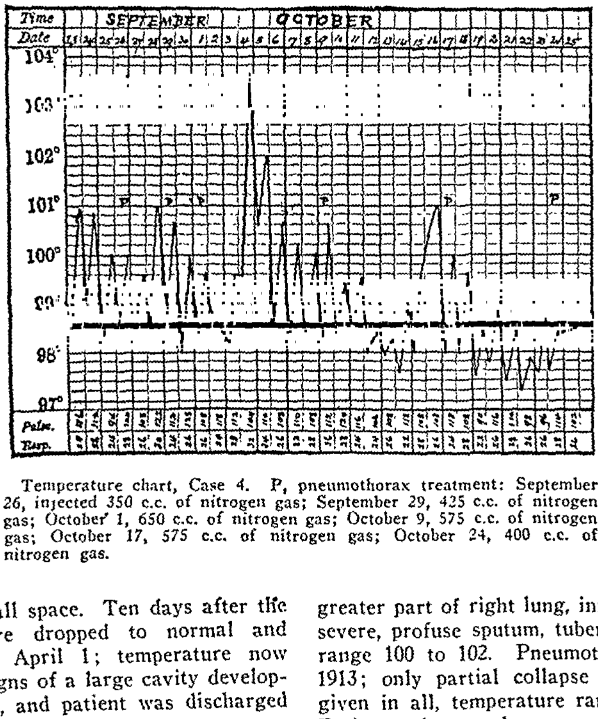
Case 2 (1324).—H. S., aged 20. Admitted Sept. 22, 1913, with marked consolidation upper half left lung, slight infiltration right apex; severe cough, profuse expectoration with bacilli present; temperature range 100 to 101.5. Gas treatment begun Oct. 17, 1913. Puncture was made in the ninth intercostal space, scapular line, manometer reading 3, —8. Injected 350 c.c. of nitrogen gas, end reading —1.5, —4. Nineteen refills were given in all, at intervals of a few days to one to two weeks, quantity of gas injected ranging from 300 to 600 c.c., and, from the physical findings, a good collapse was obtained. Four days after the treatment was begun the temperature dropped from the range of 100 to 101.5 to 99 to 100, cough improved, sputum lessened. One month after the initial injection, tuberculous enteritis developed, and while the symptoms referable to the lungs all improved, the patient lost flesh steadily and was discharged May 2 unimproved, probably because of the enteric complication.

Case 3 (1335).—M. M., aged 18. Admitted Oct. 25, 1913, with foci through the greater part of the left lung, infiltration right apex. Moderate cough and sputum, tubercle bacilli present. February 1, temperature 100.5 in the afternoon; March 9, pneumothorax treatment given. Temperature dropped to normal after four days and remained so until date of discharge, April 13, 1914. The gas was administered six times, and a good collapse of the lung was obtained. Cough and expectoration lessened, but patient developed tuberculous enteritis and was discharged unimproved.

Case 4 (1311).—I. B., aged 25. Admitted Aug. 16, 1912, with involvement throughout the greater part of the right lung, cavity at top, left lung clear; troublesome cough, profuse expectoration, tubercle bacilli present, temperature ranging from 100 to 101, in the afternoon, pulse and respiration in proportion. Pneumothorax was given Sept. 26, 1913, manometer reading —8, —13, injected 350 c.c. of nitrogen gas, end reading —3, —7. Temperature gradually returned to normal by October 20 and has remained so ever since. Thirty-three refills have been given in all. Patient has only a few spots of mucoid sputum two or three times a month, tubercle bacilli absent since March, 1914; gain in weight 23¼ pounds. This is a case in which an acute, progressive disease was arrested by compression of the lung. Patient is now doing work in the sanatorium and is clinically well. The temperature chart showing the result of the treatment is reproduced herewith.



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Case 6 (1275).—A. H., aged 45. Admitted May 14, 1913, involvement throughout the greater part of right lung, infiltration top of left lung; cough severe, profuse sputum, tubercle bacilli present; temperature range 100 to 102. Pneumothorax treatment given July 23, 1913; only partial collapse obtained. Six injections were given in all, temperature range increasing from 102 to 103. Patient unimproved.

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TECHNIC

The Floyd-Robinson apparatus is the one used by us. It is very simple and easy to operate. It being determined to collapse a lung in a selected case, the patient is given beforehand one-eighth grain of morphin hypodermically for the first, rarely, for the subsequent injections.

Factors Which Should Be a Guide in Selecting the Point of Puncture.—An area is chosen as far away as possible from the original site of the disease, as here there are less likely to be found pleural adhesions. The physical signs are very often misleading. We endeavor to find an area where there is good lung resonance, good breathing, no adventitious sounds, preferably in the seventh or eighth interspace, scapular line, or at any point between the anterior axillary line and the scapular line. Efforts to find a free pleural space are often a failure, and frequent attempts have to be made in different places before a free space is found. We have often failed where by percussion and auscultation we had reason to believe we would be successful, and vice versa.

Position of the Patient.—This will necessarily vary according to the point of election. The patient lies on the side, with the lung to be collapsed uppermost. A pillow is placed in the axilla of the side on which the patient is reclining. This facilitates the widening of the intercostal space.

Preparation of the Skin.—After being properly sterilized, a small area of the skin is painted with tincture of iodin and the excess removed with alcohol.

Cocainization.—An all glass syringe is used, with a platinum needle just long enough (1 inch) to pass through the parietal pleura. We have found that 2 c.c. of a 0.25 per cent. novocain solution gives excellent results. The index and middle fingers of the left hand are placed on the upper border of the rib. A large sized wheal is made in the skin between the ribs. The tissues are then carefully cocainized, waiting until the structures in advance of the needle are thoroughly cocainized before advancing the needle farther. When the parietal layer of pleura is reached, the patient often feels a slight pricking sensation, and here we use the novocain solution freely. The structures from without inward offering resistance to the needle are as follows: the skin; external intercostal fascia, very dense; middle intercostal fascia, very little resistance; internal intercostal fascia and pleura, quite dense and generally perceptible resistance; when the pleura is thickened, marked resistance. A small puncture is now made through the epidermis and the dense external intercostal fascia with a cataract knife, and we are now ready to introduce the gas needle. The needle is held in the hollow of the right hand, between the thumb and index finger, and the tip of the index finger is pressed against the chest wall in order to have the needle under perfect control. With the gas needle we can readily determine the different layers of tissue through which it is passing, and it often passes through them with an audible snap.

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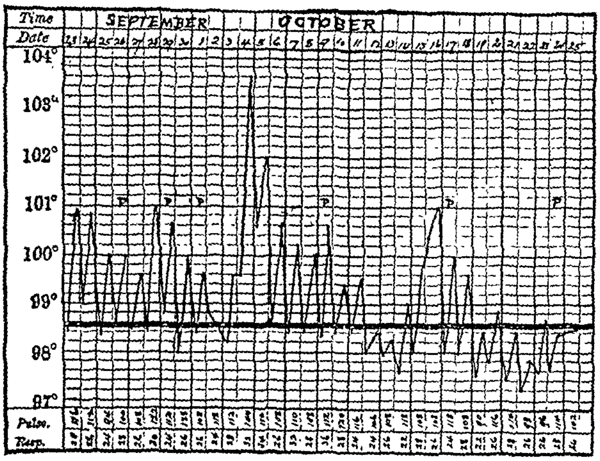

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Case 9 (1191).—C. M., aged 24. Admitted Oct. 14, 1912, consolidation upper part of left lung, infiltration throughout the rest of lung and a few indistinct râles throughout the right lung anteriorly; temperature range from 99.5 to 100; cough and sputum present, tubercle bacilli found. Pneumothorax treatment begun Dec. 3, 1912; two days following temperature rose to 102 in the afternoon; later dropped to practically normal, with an occasional rise to 99.5 to Feb. 22, 1913. Since that time practically normal temperature until May, 1913, when patient developed pleurisy with effusion, temperature 100 to 103, and the gas treatment, which had been given every two or three weeks, was now discontinued until July 13, 1913, when some of the fluid was removed and replaced with nitrogen gas. This procedure was repeated twice during August. Subcutaneous emphysema developed after one injection, causing some pain, but this entirely disappeared in three days. From July to Sept. 23, 1913, temperature of patient was normal. An extensive laryngeal tuberculosis which she had on admission disappeared. The last time this patient was heard from she was seemingly in good health and working.

Case 10 (1156).—L. B., aged 39. Admitted July 6, 1912, with consolidation throughout the greater part of the left lung, cavity at top, infiltration top of right lung, a few small râles after cough. Temperature 99.5 to 100, cough troublesome and sputum increasing. As the disease was steadily progressing in the left lung, pneumothorax was given, February 17, and a good collapse was obtained; twenty-seven injections were made in all. Patient developed pleurisy with effusion in June. Treatment consisted at times of removing some of the fluid and replacing with nitrogen gas. Shortly after the treatment was given the temperature dropped to normal, practically no cough, slight sputum, tubercle bacilli absent, signs at the top of the opposite lung improved. Patient gained 11¾ pounds and was discharged much improved; fluid still present at base of left lung.

Case 11 (1437).—B. S., aged 35. Admitted Aug. 26, 1914; left lung had previously been partially collapsed. Treatment was continued from September, 1914, to January, 1915. During residence patient had an occasional rise of temperature to 99.5; small area of infiltration which was found on admission at the base of right lung remained practically unchanged; slight cough and sputum present on admission disappeared. Discharged improved.

Case 12 (1307).—M. W., aged 25. Admitted Aug. 4, 1913, slight cough, no expectoration, slight infiltration left apex, right lung clear. Patient did fairly well until April, 1914, gaining 12 pounds. From this time the disease progressed steadily. Beginning Aug. 17, 1914, signs of softening, top of left lung, right clear, cough troublesome, profuse expectoration with tubercle bacilli present, temperature ranging from 100 to 103. Pneumothorax was begun August 18 and was repeated at intervals of a few days to from one to two weeks. A good collapse of the lung was obtained, cough improved, temperature ranging somewhat lower. In October, patient developed tuberculous enteritis, which grew steadily worse, and while the symptoms referable to the lungs improved considerably, patient lost weight steadily and was discharged March 9, 1915, unimproved.

Case 13 (1260).—M. P., aged 24. Admitted April 19, 1913, with an infiltration of the upper half of the left lung and right apex, moderate amount of sputum, tubercle bacilli present, temperature range from 99 to 99.5. Did fairly well until June, 1914. Pneumothorax treatment begun July 10, 1914; fairly good collapse obtained, nothing heard over left lung, except bronchial breathing and subcrepitant râles at apex. Eighteen refills have been given to date; cough has practically disappeared. Beginning with September, 1914, only one or two spots of mucoid sputum daily, tubercle bacilli not found, temperature normal. Patient is now at the sanatorium receiving the treatment every three to four weeks, and is clinically well.

Case 14 (1266).—R. H., aged 19. Patient was referred to us by Dr. Fred H. Heise, resident physician, Adirondack Cottage Sanatorium, Trudeau. The following is his report of the case while the patient was under his supervision: "Right lung clear, with the exception of slight changes in voice and breathing at apex; left lung showed infiltration to the third rib anteriorly and to ninth vertebral spine. It was decided to collapse the left lung owing to persistent hemoptysis, and treatment was begun Nov. 24, 1912. Refills were given at intervals of three to three and a half weeks, and two months later the patient had no symptoms and improved so much that she was allowed five minutes' exercise, which was gradually increased to one hour twice daily, when she was discharged from the sanatorium the latter part of April, 1913." Patient was admitted to Stony Wold Sanatorium May 1, 1913, and treatment was continued every three weeks. During residence here, patient had no symptoms and was discharged, Oct. 29, 1913, clinically well. She has been working ever since, and the last time we heard from her she was apparently well and still receiving the pneumothorax treatment.

Case 15 (1304).—R. S., aged 16. Admitted July 24, 1913. Right lung negative, left lung active infiltration upper half. Cough, profuse expectoration, tubercle bacilli present. Disease was steadily progressing in the left lung, with temperature ranging from 99.5 to 100. Pneumothorax treatment was begun Oct. 8, 1914, eleven refills in all being given. Two days after the initial injection temperature dropped to 99, with only an occasional rise to 99.5, practically no cough, slight expectoration, once or twice a week, tubercle bacilli absent. Patient was discharged March 20, 1915, much improved.

CONCLUSIONS

It is most gratifying that at last we have a rational treatment that can be used in the far-advanced cases. A comparatively few years ago symptomatic treatment, with the hope of temporary relief, was the only one given. The present status of artificial pneumothorax is that in a fair percentage of these hopeless cases we can offer either an arrest of the disease, or a chance of returning to good health. The procedure is, like any other operation, attended with slight dangers, but these are insignificant as contrasted with the fatal outcome if the disease is allowed to go on unchecked. The duration of treatment is one offering the greatest problem. It is impossible, of course, to determine whether the tuberculous foci in the collapsed lung have become entirely cicatrized, even though the patient is clinically well. It is far better to continue the treatment for an indefinite period, extending over years, than to discontinue the compression and discover after a few months that the disease is becoming active again, and when an attempt is made to readminister gas, that the layers of the pleura are densely adhered.

Elements of American Mortality.—Returns available for the United States for the registration area, which includes about 65 per cent. of the total population, show that the general death rate has fallen from 20.8 per 1,000 in 1890 to 14.1 in 1913. Throughout the period under observation the male rate has been in excess of the female rate, and in 1913 the rates were 15.0 for males and 13.1 for females. For the white population the mortality was 14.0 per 1,000, and for the colored 22.9. For white males the rate was 14.9, and for white females 13.1. For colored males the rate was 24.9, and for colored females 21.0. For certain principal causes the comparative death rates for the two sexes were as follows: tuberculosis of the lungs, males, 14.9, females, 12.0; pneumonia, males, 14.7, females, 12.6; accidents, males, 12.8, females, 4.0; urinary diseases, males, 10.8, females, 8.8; cancer, males, 5.8, females, 9.3; typhoid fever, males, 2.5, females, 1.7; suicides, males, 2.5, females, 0.8. The urban death rate for the registration area for the period 1908-1912 was 15.5 per 1,000, and the rural death rate was 12.9.

DIAGNOSTIC THESES IN PULMONARY TUBERCULOSIS

LAWRASON BROWN, M.D.
SARANAC LAKE, N. Y.

Since the time of Hippocrates, many medical aphorisms have been published, and as they convey in a concise and at times a clear manner the experience of the writer, they are often read. Such theses must include many well-known facts to which all subscribe, and their *raison d'être* lies in the fact that assent or dissent is at once forthcoming. For the beginner in work in pulmonary tuberculosis, succinct opinions on diagnosis are of great assistance.

DIAGNOSTIC THESES

1. An appearance of ruddy health does not exclude tuberculosis.

2. In any patient with constitut[illegible] matter of what he complains, the [illegible] culosis must be kept constantly in mind.

3. Prolonged and intimate exposure at any time of life, but especially in childhood, and in home or workshop or office, is vastly more important in diagnosis than "unassociated" or "noncontact" heredity.

4. Prolonged contact with tuberculosis may lead to infection, but debilitating conditions are necessary usually to cause this to develop into clinical tuberculosis.

5. Constitutional or general symptoms lead us to a diagnosis of tuberculosis, while the localizing symptoms point out the organs involved.

6. The history or presence of certain complications, as fistula-in-ano, pleurisy, dry or especially with effusion, adenitis, a discharging ear, coming on painlessly, are all strongly suggestive of tuberculosis.

7. Loss of color, prolonged exposure to tuberculous infection, especially in childhood, with a history of swollen glands at that time, the more recent subjection to debilitating conditions, the presence of unequivocal constitutional and localizing symptoms, with or without the aforementioned complications, demand a diagnosis of pulmonary tuberculosis even though no abnormal physical signs are present in the lungs.

8. *Your* patients, *your* friends, *your* family are as prone to contract and develop pulmonary tuberculosis as hundreds of others.

9. The importance of physical examination in the diagnosis of pulmonary tuberculosis has been overemphasized.

10. Symptoms are a better and more accurate guide to activity than physical signs.

11. Symptoms without physical signs demand treatment, while physical signs without symptoms require only careful watching.

12. Slight but persistent rise in temperature and increase in rapidity of pulse are often present early in the disease.

13. The usual weight of a patient who develops pulmonary tuberculosis is often 10 pounds below the normal weight for his height and age.

14. Failure to interpret rightly the significance of symptoms, to detect the presence of abnormal physical signs, can be condoned; but failure to ask for and examine the sputum repeatedly in any patient with chronic cough is inexcusable.

15. Absence of tubercle bacilli in the sputum means only that bronchial ulceration has not occurred.

16. Auscultation and inspection are the most important procedures in the detection of abnormal physical signs.

17. Inspection reveals localized retraction of the chest wall and limitations of the chest movement.

18. Auscultation is more important than inspection, and the detection of râles by the auscultation of the inspiration following cough is the most important procedure in the detection of physical signs of early pulmonary tuberculosis.

19. Changes in the relative lengths and intensity of the inspiration and expiration are valuable but less easy to detect.

20. The disease is practically always more extensive than the physical signs indicate.

21. Abnormal physical signs in one apex should be considered as due to pulmonary tuberculosis until proved not to be, while those at the base should be looked on as nontuberculous until definitely proved so.

22. The fluoroscope, the roentgenogram and stereoscopic plates may reveal and locate pathologic pulmonary changes to be detected by no other means.

23. When sputum is lacking, or when tubercle bacilli are absent on repeated examinations, the possibility of the presence of bronchiectasis, hyperthyroidism, syphilis and influenza, and more rarely pulmonary tumor and Hodgkin's disease, should be borne in mind.

24 No modification of the tuberculin tests as yet devised differentiates clearly clinical tuberculosis that demands vigorous treatment from nonclinical tuberculosis that requires only a God-fearing life.

25. It may be impossible to determine definitely the presence or absence of clinical tuberculosis.

MEASURES FOR PROMOTING THE NUTRITION IN THE PSYCHOSES *

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At a time when biochemistry and microscopy are achieving such brilliant results in demonstrating the etiology and pathology of disease, a discussion of time-honored methods of treatment may naturally be expected to provoke only a more or less modified interest. Nevertheless, I regard such a discussion as seasonable, and all the more so since the fascinations of science logically tend to diminish confidence in and thus lead to neglect of measures which, though their value may have been ever so amply attested by many years of experience, *in their inception* at least, were essentially empiric. *Not to be misunderstood*, I wish to express my most sincere respect and admiration for the efforts that are being put forth with a purpose of discovering a palpable cause of insanity, and hence rational plans of prevention and cure; pending such discovery, however, it is expedient to make the most of what we possess, even though it falls ever so far short of what we desire.

My purpose is to describe briefly certain measures for promoting the nutrition and the manner of their application in cases of insanity, as I commonly employ them in practice. No claim of novelty or originality is made.

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* Read at the Seventy-First Annual Meeting of the American Medico-Psychological Association, held at Fortress Monroe, Va., May 12, 1915.

The ingenious hypothesis that a given case of insanity may be due to infection and that hypernutrition might promote a cure by facilitating the formation of antibodies, or any other theory that may be set up to account for its favorable effect on the course of the disease, does not call for discussion here. The assumption is simply made that in a large proportion of patients suffering from various forms of the acute psychoses, promotion of the nutrition is a prominent indication of treatment. It is further assumed that the nature of the patient's malady is such as to impair more or less his cooperation with efforts made in his behalf, or even to induce him to offer the most determined resistance to them. Under the conditions postulated the effective application of any and all measures demands that the patient be all the time surrounded with adequate provisions for his control, or indeed be subjected to the exercise of arbitrary authority resting on a basis of physical force, either active or potential. For various reasons largely economic, because a physician experienced in such cases, the only proper source of arbitrary authority, should be always at hand to relax, or reinforce this, according to circumstances, these patients are best treated in a specially equipped institution.

THE STOMACH PAD

The procedure to which I wish first to call attention is the use of the stomach pad. My practical acquaintance with it was gained many years ago from a masseuse who conducted a very successful rest cure, and who regarded the employment of this measure as one of the principal factors which had contributed to the establishment of her reputation. Patients who had become emaciated to the last degree, through inability to digest their food, though they had been quite refractory to the most skilful medication, lavage and what not, promptly responded to the so-called rest cure, of which the stomach pad constituted one of the essential components, when all medicine, with the exception of indicated laxatives, was withdrawn. To be sure, these patients differed in many particulars from those under consideration. Their cooperation could be relied on. The full effects of rest in bed, thorough mastication and massage were available. Nevertheless, since the therapeutic problem is identical in each instance, if the stomach pad has any considerable utility in promoting digestion and assimilation, its claims should certainly command respectful attention.

The elaborate and convincing investigations of Henry Head[1] demonstrate that the functional activity of the several abdominal and thoracic organs or viscera is sensibly promoted by stimulation of the skin lying over them. There are pathways for the passage of nervous stimuli from the skin through the spinal cord and thence to the underlying viscus; hence it would appear that the empiric, and for centuries at least popular practice of counterirritation, after all, rests on a sound scientific basis.

The heat is conveniently applied by means of dry wheat bran, as follows: A cotton or linen container of the proper size and shape is filled with bran. I advise having it extend the whole width of the abdomen from the nipples to the pubes, and made with a box border about 2½ inches in depth. The pad should not be stuffed so full that it cannot easily conform to the contour of the body. It may be heated in an oven at a temperature of about 300 F. to be made ready for application. When applied, it may be covered with oiled silk and blankets to retain the heat. This is much lighter, and patients usually pronounce it more comfortable than the various forms of moist or wet heat as, for instance, the flaxseed poultice. Though I was originally strongly prejudiced in its favor, the electric pad as a means of applying heat has for several reasons quite disappointed my expectations.

Incidentally it may be stated in this connection, although hardly a matter of minor importance, that the tranquilizing effect of the hot stomach pad, in cases characterized by considerable excitement, is sometimes quite striking. It was long ago demonstrated that in natural sleep the volume of blood in the extremities is sensibly increased and that consequently the brain becomes correspondingly anemic; hence for the purpose of dilating the vessels of the extremities and the portal circulation and thus facilitating sedation and hypnosis, the application of heat to the extremities and the epigastrium is a rational procedure. And, while in a large majority of highly excited cases when not used in conjunction with medicinal remedies it cannot be relied on to induce promptly either sleep or sufficient sedation, it embraces a principle of very wide application and enormous value in the treatment both of the psychoses and the neuroses, or combinations of them. The maximum sedative and hypnotic effect of the principle is of course attained by employment of the full hot bath, in conjunction with cold to the head.

FEEDING

When the food is well relished, the solids and semisolids thoroughly masticated, and liquids slowly sipped, no doubt the process of digestion progresses much more easily and satisfactorily than when opposite conditions prevail. Unfortunately, in the psychoses it only too frequently happens that none of these aids to digestion are available; even in those cases in which by persuasion, scolding, coaxing, or what not, enough food may be swallowed, all of them are commonly wanting. In these patients the use of the stomach pad is of distinct value. If it can be kept in position while the meal is being given, the patient meanwhile lying on his back, as is the ordinary practice when mental disorder does not have to be reckoned with, so much the better; the application is continued from forty-five minutes to an hour after the meal is finished.

When liquid food must be introduced artificially, let this, at or slightly above normal bodily temperature, pass into the stomach very slowly through a small tube, the pad being employed as indicated above. To be sure, since there are numerous and wide variations in the phenomena presented by individual cases of the psychoses in which "building up" measures are urgently demanded, as well as in others, no fewer or less pronounced modifications have to be made in the practical application of any procedures intended for their relief. Long and intimate experience with these phenomena and their individual variations is essential to a reasonable comprehension of their significance; hence such experience is likewise essential to the exercise of sound judgment in the employment of any and all means that may be advocated or made use of in the treatment of the psychoses.

REST IN BED

In a very considerable proportion of patients afflicted with various forms of the acute psychoses, whose symptoms are such as to present formidable obstacles to the problem of satisfactorily meeting the nutritional indications, intense and inveterate restlessness is one of the most common and prominent morbid manifestations. Even when a liberal amount of nutritious food is introduced and well digested, the patient may steadily lose weight on account of the exhaustive character of his restlessness or agitation together with the concomitant loss of sleep; hence an effort to secure even a modicum of rest should never be neglected. It almost never happens that rest in bed, as it is carried out in the so-called rest cure, is feasible; even in the most favorable cases, modifications or compromises have to be made. And since patients will rarely accept massage in lieu of exercise, even in those rare instances in which absolute rest might be secured, it would be of doubtful advantage.

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[1] Head, Henry: Brain, 1893, iv, 6.

Unhappily, in practice we are usually obliged to content ourselves with making the attempt, in each case, to strike a balance between the damage the patient is sustaining from the excitement incident to the natural course of his disease, and the injury he might suffer from employment of some of the various resources at our command for the purpose of reducing the morbid activity. As an exceedingly general proposition, if in the course of a few days by dint of intelligent and persevering effort a patient can be successfully trained to remain in bed till noon without persisting in exhaustive efforts of resistance, a position of enormous advantage has surely been gained in the nutritional struggle. After dinner the desired amount of outdoor air and exercise may be prescribed.

FRESH AIR AND SOUNDPROOFED ROOMS

The value of an abundance of fresh air as an essential element in the promotion of nutrition can hardly be overestimated; and unfortunately it only too frequently happens that, from various considerations, the class of patients under discussion cannot be much if at all outdoors for weeks or months together; and, indeed, at the same time it may be expedient to keep the doors and windows of their rooms closed. Since it has been demonstrated over and over again that continued close confinement in poorly ventilated rooms is by far the most potent etiologic factor of pulmonary tuberculosis, that this cause operates by reducing the nutrition, and that the nutrition is most effectively restored and the disease cured by keeping the patient continuously in the open air, the vast importance of sound-proof or muffled rooms with ample forced ventilation in attaining the end in view is obvious. Observed from a still different angle, the enormous advantage of these rooms in the solution of the difficult nutritional problem which many cases of the acute psychoses present is plainly seen. The more or less profound disorder of digestion inevitably produced by the regular administration of full doses of sedatives and hypnotics is too well understood to require comment. In the practical operation of a hospital, however, it is manifestly unjust to permit the disturbance made by, say, 5 per cent. of the patients to deprive the remaining 95 per cent. of perhaps several hours' sleep at night and seriously interfere with their comfort and tranquillity by day as well. Without the resource which these rooms supply when instances of individual excitement occur, the principle of "the greatest good to the greatest number" has to be brought into requisition. When these rooms are available, however, the physician is relieved of all obligation to administer a harmful remedy to one of his patients for the benefit of others. And though the degree of sound proofing falls far short of what might be desired, ten years of experience with these rooms has confirmed the conviction which prompted their installation; this conviction is that they are indispensable to the fair and proper treatment of a considerable proportion of cases of the acute psychoses. Unfortunately, candor compels me to confess that the conclusions I have reached in this connection and the facts on which I have based them are all ignored, almost entirely, both by our profession and the laity. It may be asserted without much fear of contradiction that no instance can be cited in which either a patient's family or his physician in selecting accommodations for treatment ever gave the slightest weight, in reaching a decision, to the considerations here advocated. The installation and operation of these rooms involves a considerable expense, and in the existing attitude of the public and our profession regarding their value, whoever makes use of them may indeed augment his own sense of satisfaction and self respect, but from a financial standpoint he places himself in a position to be called a fool for his pains.

As a means of improving the nutrition, it is altogether feasible to keep a considerable proportion of patients suffering with various forms of the acute psychoses outdoors during the day time, using the same methods to protect them against inclemencies of weather as are followed in tuberculous cases. For various reasons, however, as a reliable measure of treatment in these cases, it would rarely if ever be expedient to attempt to inaugurate outdoor sleeping. For the satisfactory application of the outdoor method of treatment, enough pavilions are desirable to permit of proper classification. These should open to the south and be provided with concrete floors and walks leading to them so that weather conditions do not have to be reckoned with. The salutary effects of outdoor life in promoting nutrition do not demand the services of an advocate.

HYDROTHERAPY, MASSAGE AND OCCUPATION

Although hydrotherapy, massage and occupation may be regarded as somewhat less direct in aiding the nutritional process than some of the agencies previously mentioned, when conditions are favorable to or perhaps even admit of their exhibition, any or all of them may be of great service. The indications for their use, and the form and manner of their application, especially with reference to the last, could be easily expanded to the dimensions of a chapter. In conclusion and somewhat by way of digression, and at the same time as a note of caution, permit me to state briefly a concrete case, illustrating the unfortunate effects that may result *from insufficient supervision of* prescribed occupation.

Some years ago while in state service, I prescribed a review of her school work for a young woman formerly a teacher. This patient of the dementia praecox type had been comparatively comfortable for several years, with some supervision dressed herself properly, was able to participate in the various forms of diversion usually provided in state hospitals, and was in a fairly satisfactory state of bodily health. She took to the work eagerly; but while her teacher and myself were congratulating ourselves on the success of our plan, the patient passed quite rapidly into an attack of high excitement very much like that which occurred at the onset of her disease, and from which she emerged a few months later on a little lower plane than before. Whenever this circumstance has recurred to my mind, it has always been accompanied by the conviction that this defenseless patient was a victim of my misdirected enthusiasm and inadequate attention. Of course an experience of this kind does not cast discredit on occupation as a valuable resource in the care and treatment of the insane; it simply emphasizes the necessity of studying each and every case both deeply and broadly, and of maintaining a close observation of and active interest in them to the end of the chapter.

59 East Madison Street.

A RAPID AND SIMPLE METHOD OF TESTING DONORS FOR TRANSFUSION [*]

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The increasing popularity of transfusion as a therapeutic measure has brought with it the need of a test whereby the suitability of donors may be rapidly determined. There are already many instances on record of serious symptoms or death following the rapid breaking down of blood after transfusion. The evidence is convincing that such instances may be avoided if a donor is selected beforehand by means of certain simple tests carried out in vitro. Unfortunately these, as performed at present, require time and labor. It is with the aim of providing a test rapid and simple enough to be employed even in emergencies that the following method has been devised:

METHOD

Collection of the Blood.—The blood is taken from the patient and the prospective donors in a 1:10 mixing pipet, such as is used in counting leukocytes. The pipet is rinsed beforehand with 10 per cent. sodium citrate in water; the citrate solution is drawn up to the mark 1; the pipet is rapidly filled with blood from a puncture of the ear or finger; and without pause the mixture is expelled into a small, narrow test tube. There is thus obtained a citrated blood containing slightly less than 1 per cent. of citrate. The pipets which we have employed hold only 0.25 c.c. of fluid. This much blood is easily obtained from a single puncture. There is no objection to increasing the flow by pressure. Should it cease before the pipet is full, the blood must be at once expelled into a test tube, in order that it may mix with the citrate and clotting be avoided. The mixture is then taken up again, a new puncture made, and the pipet completely filled. After each blood is obtained, the pipet is rinsed with citrate, then with distilled water, then with fresh citrate, and it is ready for another blood. If several donors are to be tested, two pipetfuls of citrated blood should be obtained from the patient. It is best to take them from different puncture wounds, in order to avoid a possible clotting in the pipet.

Mixing.—The mixing is done in pipets with a capillary end—the so-called Wright pipets obtained by drawing out glass tubing in the flame. The citrated bloods are used as such, and two combinations are made of the patient's blood with that of each prospective donor—a mixture containing nine parts of the patient's blood to one of the donor's, and a mixture of equal parts of the two. The proportions used need be only approximate. In case of emergency the first of the mixtures will suffice, since by its use the most dangerous possibility, namely, that the blood of the recipient may destroy that of the donor, can be ruled out. Following the technic usual with Wright pipets, the capillary tube is marked, blood is drawn to the mark, and each column of the blood is separated with an air bubble from the next that is drawn up. To insure proper mingling, each mixture should be expelled on a slide, or Widal plate, and then drawn high in the pipet, which may be sealed off in the flame in case the examination is not to be made for some time.

Incubation.—No incubation in the ordinary sense is necessary. The pipets are kept at room temperature, and readings are begun after two minutes, if there is need to hurry. The readings are for agglutination, and even within two minutes this is plainly evident, except when the agglutinating forces are notably weak. In the final choice of a donor it is safest to rely on results obtained after the mixtures have stood for fifteen minutes. But the ruling out of individuals with unfit blood may be begun practically at once.

Readings.—The capillary end of each pipet is broken, a small drop of the blood expressed on a slide, a large drop of normal salt solution superimposed without mixing, a coverslip put on, and the preparation examined for agglutination under the microscope. Fresh preparations can be made at intervals if desired. The salt solution is not absolutely necessary; but very clear pictures are obtained as the blood spreads in it. When agglutination has occurred, the red cells show a characteristic clumping, sometimes in small masses, often in large ones that are very evident macroscopically. The clumps in each preparation are fairly uniform in size. The picture is absolutely different from that in mixtures of nonagglutinating bloods under similar conditions. In these, the cells lie free or in rouleaux, just as in a single blood. But in agglutinating mixtures the cells are stuck together "every which way," and, where the film is thin, they do not separate but lie connected with one another in irregular heaps. If pressure is put on the coverslip, a very characteristic phenomenon may sometimes be seen. The agglutinated cells pull out in strands as though they consisted of some sticky substance. The most striking pictures are encountered when there are nine parts of an agglutinating blood to one that is agglutinated. Here large discrete masses lie scattered amid unclumped red cells.

If there is no clumping in the preparations made after the mixtures have stood fifteen minutes, the assumption is warranted that the bloods do not agglutinate or hemolyze each other. The experience of previous workers has taught that in such instances transfusion is safe. But if clumping is present in the 9:1 mixture and to a less degree or not at all in the 1:1 mixture, it is certain that the blood of the patient agglutinates that of the donor and may perhaps hemolyze it. Transfusion in such cases is dangerous. Clumping in the 1:1 mixture with little or none in the 9:1 indicates that the plasma of the prospective donor agglutinates the cells of the prospective recipient. The risk from transfusing is much less under such circumstances, but it may be doubted whether the blood is as useful as one which does not and is not agglutinated. A blood of the latter kind should always be chosen if possible.

For practical purposes these findings suffice. But if there is a desire to know whether *both* bloods contain agglutinins, a *1:9 mixture should be made. If this and the 9:1 mixture* show large clumps, whereas the clumps are smaller when the bloods are mixed in equal parts, two agglutinins must be present.[1] Should there be only one agglutinin, little clumping or none will be observed when the blood containing the agglutinin is diluted with nine parts of the other blood.

Difficulties.—The single technical difficulty of the method is that of clotting, and to avoid it the blood should be taken as rapidly as possible. With normal blood, trouble is seldom experienced, but in pathologic instances a thin web may form in the test tube into which the blood is expelled. The clotting begins in the calibrated tube of the pipet which, as the blood is taken, is swept free of citrate; and the use of a strong citrate (15 per cent.) will not prevent it. But the clot is always thin and may be picked out of the blood and the latter used for the tests. In the pipet even small clots are troublesome, since they form a locus for new ones when another blood is taken. They are best dissolved out with 5 per cent. potassium hydroxid.

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[*] From the Laboratories of the *Rockefeller Institute for Medical Research.*

[1] This phenomenon has been described by Ottenberg in an interesting study of the conditions under which human bloods show agglutination. He used mixtures of defibrinated whole blood. (Ottenberg, R.: Jour. Exper. Med., 1911, xiii, 425.)

The likelihood that something else may be mistaken for agglutination is practically nil. The presence of fibrin strands and clumps of platelets and white cells absolutely differentiates bits of clot. Dried blood will not be found except in case of carelessness, and it is unlikely to cause confusion. Its nearly homogeneous, cheesy appearance under the microscope is sufficiently distinctive.

COMMENT

The test here described has some features in common with two of the methods already in use. Therefore, to point out wherein it is an advance over these will not seem amiss. Epstein and Ottenberg[2] use Wright's pipets, collecting blood in them for serum, and making the ultimate test mixtures in them. But the mixtures consist of serum and washed red cells; they are incubated for two hours, and the readings are macroscopic. Weil[3] employs citrated bloods, making, in test tubes, three mixtures of the same relative proportions as ours. Two c.c. of each blood are required, thus making necessary aspiration from a vein; the tubes are incubated for an hour, and the readings are macroscopic. By means of the test of Epstein and Ottenberg, aspiration from a vein is avoided; and by Weil's method the need to separate serum, wash the red cells and make reciprocal observations is done away with. In both instances, however, the time and the labor of testing donors is very considerable. Using our method, it is only necessary to obtain citrated bloods from a finger-prick, make two mixtures of them in capillary pipets, and, by reading with the microscope, the test is finished within a few minutes.

The method involves several important assumptions. They may be summed up in two questions: 1. Is the presence or absence of agglutination an index to the injurious qualities of a blood? 2. Are the microscopic findings with mingled, citrated bloods that have stood fifteen minutes at room temperature as certain in their indication as macroscopic findings after longer periods with mixtures of serum and 5 per cent. washed red cells—that is to say, as certain as the test most used at present?

The first question can be answered from the literature. Leaving from consideration disease in the donor, two injurious influences must be thought of when a foreign blood is introduced into the human body, namely, hemagglutination and hemolysis. The latter is far the more serious. Moss[4] has found in extensive observations that agglutination frequently occurs without hemolysis, but that hemolysis is always associated with or preceded by agglutination. This conclusion he has substantiated with seventy-five successful transfusions[5] in which the donors were selected by means of the agglutination test. It is well known that human beings fall into four groups as regards the agglutinins in their serum and the capacity of their corpuscles to be agglutinated. Moss was careful to select for transfusion individuals of the same group. Without going deeply into the matter we may say that, when serum and washed cells are used, reciprocal observations are necessary to determine whether two individuals belong to the same group. But in mixtures of whole citrated bloods, agglutination is only absent when this is the case.

In our test, agglutination is looked for with the microscope. This does not mean that macroscopic readings are impossible, for when clumping is at all outspoken in the slide preparation, it is plainly evident to the naked eye. Observations can, in emergency, be made in this way. But with the microscope, as one would naturally suppose, the readings are more sensitive and more precise. When antirabbit goat serum is mixed with rabbit red cells, clumping is observable microscopically in dilutions of serum much higher than those in which it is evident macroscopically in the test tube. This can be noted also with dilutions of an agglutinating human serum mixed with human red cells and with undiluted human serums weak in agglutinins. An agglutinative clumping is rarely doubtful microscopically, for the cohesion of the cells, even when only two or three are concerned in each clump, is absolutely different from rouleaux formation. In the test tube an agglutination is often difficult to distinguish from sedimentation; and the shaking which throws up the clumps into the fluid that they can be viewed may break them so that they do not reform.

Our experience is that if agglutination occurs at all it will be noticeable microscopically within five minutes. But it is better to let the mixtures stand longer. We have no hesitation in saying that agglutination can be told with the microscope as certainly after fifteen minutes as in two hours with the old macroscopic method. The explanation of this is probably simple. The clumps which become visible in the test tube after an hour or more are in general not the primary clumps of an agglutination, but the result of the massing together of many such clumps, which themselves are often small. Such secondary massing requires time, whereas the primary clumps form almost immediately.

That agglutination is sometimes better at room than at body temperature is well known.[6] Repeated trial has shown that the incubation of our agglutinating mixtures seldom increases the rapidity of the reaction. In some instances agglutination was much more pronounced after fifteen minutes at room temperature than in two hours at body heat. An altered distribution of the agglutinin may account for this.

It has been repeatedly shown that an excess of red cells may mask the presence of an agglutinin or hemolysin, and that hemolysis is much influenced by the presence of neutral serum. Agglutination is practically independent of this latter factor.[7] The influence of small amounts of sodium citrate does not seem to have been determined. The following is one of several experiments dealing with these points in their relationship to our test:

PROTOCOL OF EXPERIMENT

By venous puncture some cubic centimeters of a human blood, *A*, were taken with citrate (1 part 10 per cent. citrate to 10 parts blood) and some obtained for serum. Graded dilutions of the serum were made with salt solution, and mixed in small test tubes, as also in Wright's pipets, with equal parts of 5 per cent. suspensions in salt solution of certain washed red cells, *B* and *C*, which the undiluted serum agglutinated.

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[2] Epstein, A. A., and Ottenberg, R.: A Method for Hemolysis and Agglutination Tests, Arch. Int. Med., May, 1909, p. 286.

[3] Weil, Richard: Sodium Citrate in the Transfusion of Blood, THE JOURNAL A. M. A., Jan. 30, 1915, p. 425.

[4] Moss, W. L.: Johns Hopkins Hosp. Bull., 1910, xxi.

[5] Moss, W. L.: Am. Jour. Med. Sc., 1914, cxlvii, 698. See also, for the bearing of agglutination on transfusion, Ottenberg, Reuben, and Kaliski, D. J.: Accidents in Transfusion, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2138.

[6] Paltauf, R., in Kolle-Wassermann's Handbuch der pathogenen Mikroorganismen, ii.

[7] Hektoen, Moss, Ottenberg.

Dilutions of the plasma of the citrated blood *A* were made, similar to those of the serum, but the proportion of red cells was kept the same as in the original citrated blood. For this the citrated blood was distributed in a number of graduated tubes, centrifugalized rapidly, the supernatant fluid measured and diluted appropriately, and, when the red cells had been suspended and centrifugalized, all of the fluid was pipetted away except the original volume, and the cells were resuspended. The diluent used was sodium citrate in salt solution (1 part 10 per cent. sodium citrate to 9 parts 0.95 sodium chlorid). Nine parts of each of the combinations thus obtained were mixed in Wright pipets with one part of the whole citrated bloods *B* and *C*. The microscopic findings after fifteen minutes were compared with those in the serum mixtures after one and two hours. They gave identical results. Agglutination occurred when dilutions of serum or plasma up to 1 part to 7 of the diluent had been used for the mixtures, but not when 1 part to 15 had been employed. It was slight with 1:7 plasma and no better marked with 1:7 serum.

The experiment shows that a weak agglutinin may be demonstrated quite as well with mixtures of citrated whole bloods as with serum and a diluted suspension of washed red cells in salt solution. The interference of neutral red cells does not constitute a difficulty.

CONCLUSION

The test here described compares well in delicacy with those already in use, but we wish to insist only on its practicability. It enables one to determine within a few minutes, so far as agglutination and hemolysis are concerned, whether or not the blood of a donor is suitable for transfusion.

INTRASPINAL ADMINISTRATION OF ANTITOXIN IN TETANUS

NOTES ON A SERIES OF CASES *

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As the result of a series of animal experiments conducted at the Research Laboratory of the Department of Health by Dr. William H. Park and myself[1] in order to determine the curative value of the intraspinal administration of tetanus antitoxin, and by which the superiority of this method was conclusively shown, every effort has been made during the past year to get into immediate touch with physicians and hospitals in and about the city of New York having cases of tetanus under their care, and induce them to give antitoxin as soon as possible by the following method:

1. From 3,000 to 5,000 units into the lumbar region of the spinal canal, preferably under an anesthetic, the volume of fluid injected being brought up to 10 or 15 c.c. by the addition of sterile normal saline, the exact amount being regulated according to the age of the patient and the amount of spinal fluid withdrawn.
2. Ten thousand units intravenously at the same time.
3. Repetition of the intraspinal dose in twenty-four hours.
4. A subcutaneous dose of 10,000 units three or four days later.

The well-recognized adjuvants to specific treatment — quiet, subdued light, sedatives, etc. — were, of course, understood as a necessary part of the therapeutic measures.

In no case has the physician objected to giving an intraspinal injection of antitoxin when so advised. Some, however, have given it in much greater quantities and by other methods in addition to that recommended, usually before I was able to consult with them.

Reports of twenty cases have thus been collected, in all probability representing a majority recognized as tetanus during this period in and about the city of New York. I have seen about half of the patients personally, in consultation. In others, the physicians have been kept in constant touch by telephone or through a clinical assistant during the progress of the case. In four cases, the histories have been furnished by the physician on request, the treatment given being exactly that recommended by the published article referred to above. In all cases the antitoxin used was furnished by the Department of Health.

A brief abstract of the clinical histories follows:

CASE 1.—F. D., girl, aged 10 years, seen in consultation with Drs. W. B. Anderton and A. A. Smith, fell, striking her forehead on the ground, receiving a lacerated wound three-quarters inch long over one brow. This was properly disinfected and sutured, healing promptly. Seven days later there was a facial paralysis on the side on which the wound was received. Thirty-six hours later, the jaws were firmly locked. Eight hours after this symptom was noted, the patient received 3,000 units of antitoxin intraspinally and 10,000 intravenously. Several subcutaneous injections were later given. The tetanic spasms were largely confined to the muscles of the jaw and pharynx, and later, the abdominal muscles; attempts at swallowing and the slightest external irritation caused contractions of the muscles of the throat and larynx, cyanosis, general convulsions and unconsciousness. Such convulsions occurred on fifty or more occasions, together with innumerable minor spasms. Pneumonia developed later, resolution being very long delayed. After a protracted convalescence and extreme emaciation, the patient made a perfect recovery.

CASE 2.—Thomas B., laborer, was admitted April 1, 1914, to the New York Hospital, with multiple lacerations of scalp and traumatic amputation of toes of the right foot. The wounds were immediately disinfected with iodin and irrigated with iodin solution. The following day, amputation of the toes was performed. April 10 (incubation nine days), there was slight stiffness of the jaws, which was not reported until the following morning. April 11, 1,500 units of antitoxin were given in the tissues about the wound and 3,500 intravenously, later on the same day, 3,000 units into the tissues about the wound and the same amount intravenously. April 12, the patient was very much worse, and was given 13,000 units intravenously, 8,000 intraneurally and 7,000 into the tissues about the wound. April 13, I was first consulted and the patient visited. His condition was still more unfavorable. There was marked opisthotonos. Eight thousand units of antitoxin were given into the spinal canal and 9,000 intravenously. Following the intraspinal injection the temperature rose to 105; there were severe headache, convulsions and semicoma. April 14, the patient was comatose throughout the day. April 15, the patient was conscious, and there was less rigidity. April 16, there was much less rigidity; the patient swallowed fairly well for the first time. The patient continued to improve and was discharged cured, April 30.

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* From the Research Laboratory, Department of Health, New York.

* Read at the Meeting of the Association of American Physicians, Washington, D. C., May 11, 1915.

[1] Park, W. H., and Nicoll, Matthias, Jr.: Experiments on the Curative Value of the Intraspinal Administration of Tetanus Antitoxin, THE JOURNAL A. M. A., July 18, 1914, p. 235.

Comment.—Through a series of misunderstandings, this patient received still further intravenous injections of antitoxin following the intraspinal dosage, although an examination of his blood showed a tremendous antitoxic content. How much credit should be given the single intraspinal dose for the recovery in this case it is difficult to say. It is to be noted, however, that the first real improvement followed shortly after its administration.

Case 3.—Gustav H., aged 23, carpenter, admitted to St. Vincent's Hospital, June 27, 1914, had injured the tips of his fingers in some way, June 16. A definite history could not be obtained. Three days before this, the patient had a pustule on his neck, which was opened on the 20th. There was no other history of injury. June 21 (incubation five or eight days), he first noticed that his jaw was stiff; two days later, this was much more marked and had spread to the neck, back, arms and legs. On admission, there was marked opisthotonos, and the jaws were tightly locked. The slightest disturbance caused a convulsion. The patient's body rested on the heels and back of the head. The abdomen was boardlike. Treatment on the first day after admission consisted of 5,000 units of antitoxin intraspinally and 5,000 intravenously; June 28, 5,000 subcutaneously. The opisthotonos continued. July 1, 5,000 units were administered intraspinally, five hours after which the patient became delirious with a rise in temperature to 105. From July 4 to July 8, the rigidity decreased daily. July 18, the patient was discharged, cured.

Case 4.—Boy, said to have been vaccinated sixteen days previously, the vaccination wound having apparently become infected one week after vaccination, developed a slight stiffness of the jaw. Four days after the onset of this stiffness, he was admitted to the Roosevelt Hospital, where it was noted that the legs were very stiff, the arms less markedly so. There was slight trismus. He was given, on admission, 2,500 units intraspinally, 5,000 units intravenously and 1,500 units intramuscularly and in the tissues about the wound. The latter two injections were repeated the next day. On the third and fifth day he received intraspinal injections. Improvement in symptoms began about the third day and continued until discharge thirteen days after admission, when patient was well.

Comment.—This case, though comparatively mild, was unquestionably one of tetanus. Many of the injections given could well have been dispensed with.

Case 5.—G. T., boy, aged 10 years, was admitted to New York Hospital, Oct. 9, 1914. October 2, he ran a rusty nail into the sole of the left foot. October 9 (incubation seven days), there was stiffness of jaws, and some antitoxin (dose not known) was given intramuscularly. On admission, the teeth could not be separated and there was some tension in the calf of the left leg. All reflexes increased. Eight hours after admission, 3,000 units of tetanus antitoxin were given intraspinally and 1,500 about the wound, which had been opened. A few hours later, 1,000 were given intravenously. During the night, there were minor convulsions, accompanied by piercing screams every fifteen minutes. On the 12th, there were some dysphasia, abdominal rigidity and stiffness of the neck. The teeth were separated one-half inch. Intravenous injection of 9,000 units was made; there were general convulsions. October 11, there were convulsions lasting ten minutes, opisthotonos and a great deal of pain. October 12, there were convulsions for twelve minutes, stertorous breathing, cyanosis and great rigidity for half an hour following. October 13, the boy was comfortable and swallowed well. Intraspinal injection was made of 5,000 units. From October 14, there was a gradual improvement. The patient was discharged, cured, October 24.

Case 6.—M. B., boy, aged 8 years; was admitted to Bellevue Hospital June 17, 1914. The history of injury due to a fall six days previously and the presence of an old ulcer on the right shin did not serve to establish the incubation of the disease. Five days before admission his jaw began to be stiff. This stiffness extended to other muscles day by day. On admission he was absolutely rigid from his neck to his feet. His teeth could be separated but one-fourth inch. June 18, under an anesthetic, he was given 5,000 units of antitoxin intraspinally and 5,000 subcutaneously. The mind was perfectly clear; the arms alone could be moved freely. There were incontinence of urine and feces. The boy was fed by gavage. June 25, he was very much improved. He bent at the waist when lifted. The mouth opened five-eighths inch. June 28, he moved the legs and arms freely; the spine was no longer stiff; the mouth opened widely; he ate well.

Comment.—This child was in a desperate condition at the time of giving antitoxin. On theoretical grounds we should not expect that antitoxin would be of much avail, when given at so late a period of the disease, and yet the improvement followed so soon after its administration that it would seem that antitoxin should be given the credit for it.

Case 7.—R. M., boy, was admitted to the Hospital of the Holy Family, April 15, 1914, having run a nail in the sole of his foot at some time previously not possible to determine. There was apparently locking of the jaws three days before admission, at which time the muscles of the neck and back were rigid. The wound on the sole of the foot was opened and dressed. April 16, 5,000 units of antitoxin were given intraspinally, 10,000 intravenously and 3,000 intramuscularly. The child's condition gradually improved, and he was discharged cured about two weeks after admission.

Case 8.—D. R., boy, aged 10 years, a patient of Dr. Ramsdell of White Plains, complained, Sept. 14, 1914, of pain in the back and slight stiffness of the jaw and of left arm. This child was vaccinated August 17. August 31, the vaccination wound not having been dressed for nine days, was in an unfavorable condition, there being considerable pus at the site of vaccination and swelling of the arm. A shield was later applied, on the mother's initiative. There was a further history of injury to the wound on several occasions. The incubation of the disease could not, therefore, be determined. The symptoms of tetanus increased until September 18, when the patient was given an intraspinal injection of 5,000 units of antitoxin and 45,000 units (through a misunderstanding) intravenously. Following this, there was a marked exaggeration of all the symptoms; a rise of temperature and opisthotonos, lasting about forty-eight hours. The patient gradually improved and was discharged cured in two weeks.

Case 9.—Boy, aged 6 years, a patient of Dr. Joseph Wheelwright, gave a history of trauma nine days before the locking of the jaws. Forty-eight hours later an intraspinal injection of 5,000 units and intravenous injection of 10,000 units of antitoxin were given. Subsequently this was repeated. The case was a very severe one with many convulsions, and the patient recovered fully in the fourth week.

Case 10.—A., male, at St. Vincent's Hospital, following a traumatic amputation of finger fourteen days previously, developed severe spasms of the abdominal muscles; later his jaw became locked and the rigidity was general; there were a number of convulsions. Thirty-six hours after the development of symptoms, 5,000 units of antitoxin were given intraspinally and 10,000 intravenously. There was marked anaphylaxis immediately following the injection, with urticaria covering the entire body and suggestion of edema of the glottis and lungs. This passed away shortly after the administration of a large dose of epinephrin. The intraspinal dose was repeated forty-eight hours afterward, as the patient had grown worse and had had a number of convulsions. The serum reaction following this was not so severe as in the first instance. Improvement in symptoms began to show in two or three days, the patient making a perfect recovery from his tetanus, but developed mental symptoms consisting of intermittent attacks of acute mania and delusions of persecution. After a number of weeks this completely disappeared and his condition was normal.

Case 11.—T. D., woman, aged 30 years, was seen by Drs. William H. Ross and H. E. Chauvin of Brentwood, N. Y., September 30, 1914. She had given birth to a child two weeks previously in very dirty surroundings. The symptoms of tetanus were very marked, and many convulsions continued for five days. Two days after the onset of symptoms, 10,000 units of antitoxin were given intraspinally and 5,000 intravenously; the later dose was repeated three times in three successive days. The patient was discharged cured except for a slight trismus which lasted for three days longer, October 11.

CASE 12.—R. W., boy, aged 11 years, was seen by the physicians mentioned above, Sept. 6, 1914. There was a wound over one patella, received eleven days previously. Five thousand units of antitoxin were given intraspinally and 5,000 intravenously on the day following the development of symptoms. The intravenous dose was repeated. Eight convulsions occurred during the first three days, the temperature running high during this time. The patient was discharged cured eight days after admission.

CASE 13.—W. M., man, aged 20, seen by the same physicians Jan. 3, 1915, had received a punctured wound of the instep three weeks previously. There was complete trismus and stiffness of the whole body. Ten thousand units of antitoxin were given intraspinally and 5,000 intravenously the day after the symptoms were noted. The intravenous injection was repeated the next day. The patient was discharged cured in two weeks.

CASE 14.—M. G., woman, aged 22, gave no history of traumatism. Four days before admission to the Lebanon Hospital, there was slight rigidity of the neck and difficulty in opening the mouth. The next day the jaws were completely locked. On the day before admission she had general convulsions. On the day following admission, five days after the onset of symptoms, she was given 5,000 units of antitoxin intravenously and 750 units intraspinally. On the second and third days she was given 5,000 units intraspinally under an anesthetic. The patient also received injections of magnesium sulphate (25 per cent.) subcutaneously and intramuscularly three times a day in doses of 30 c.c. for seventeen days, without apparent relaxing effect. The course of the disease was rather protracted with many convulsions. The patient was discharged cured seven weeks after admission.

CASE 15.—L. M., male, aged 18 years, was admitted to St. Peter's Hospital, March 27, 1915, with a crushed and lacerated wound of the great toe. The wound was immediately disinfected and properly dressed. March 30, the tip of the toe sloughed off. April 6, the patient had a severe chill and complained of sore throat. There was noted a slight stiffness of the jaw. In the afternoon there were marked stiffness of the back, and occasional slight convulsions when the patient was disturbed. Twenty thousand units of tetanus antitoxin were given intraspinally four hours after the occurrence of the chill. On the 7th, the symptoms increased in severity, convulsions occurring on the slightest irritation. There were marked opisthotonos and rigidity. Ten thousand units of antitoxin were given intraspinally under an anesthetic. On the 8th, the patient's condition was about the same. Ten thousand units of antitoxin were given intravenously. After the tenth day, the convulsions stopped; the rigidity continued some time longer. April 22, the patient was up and about with slight rigidity. He was discharged cured a few days later.

CASE 16.—M. S., man, aged 24, admitted to Bellevue Hospital Feb. 4, 1915, with very indefinite history, was said to have run a splinter into his foot three weeks previously. Two days before admission he complained of great pain in his back and neck, which was stiff; later he could not open his mouth. On examination the day after admission, it was found that his jaw was markedly locked, the abdominal muscles of a boardlike rigidity, and the back slightly arched. He was given 5,000 units of antitoxin in the spinal canal and 10,000 in the vein. The intraspinal dose was repeated two days later. The symptoms increased in severity for a day or two, frequent tonic spasms causing the patient to cry out with pain. After a few days all symptoms began to ameliorate, and he was completely well in about two weeks.

FATAL CASES

CASE 17.—O. R., man, aged 34, was admitted to Bellevue Hospital, Nov. 5, 1914, for a lacerated wound of the sole of the foot, which, although treated, became infected with a foul-smelling, purulent discharge. November 12, seven days later, the patient complained of difficulty in swallowing, and the jaws were stiff. He received 1,500 units of antitoxin intramuscularly, and twenty-four hours later, 10,000 units intraspinally and 10,000 intravenously. November 14, the temperature was lower, the jaws less stiff and the general condition improved, when the patient became markedly cyanotic, went into a condition of status epilepticus and died in twenty minutes. No necropsy was held. The exact reason for the sudden death of this patient, when the course of the disease had apparently been arrested, is by no means easy of explanation.

CASE 18.—J. O., man, aged 32, admitted to St. Peter's Hospital, Nov. 13, 1914, had stepped on a rusty nail, November 1. Seven days later, his jaw became stiff. This stiffness increased until the time of admission, when his teeth could hardly be separated. The muscles of the back and neck were stiff. November 13, five days after the onset of symptoms, he received 6,000 units of antitoxin intraspinally and 5,000 intramuscularly, the next day, 5,000 intramuscularly and 5,000 intravenously, and on the following day, 5,000 units intravenously and 7,000 intramuscularly. The patient had tonic and clonic convulsions in great numbers throughout the course of his illness. On the day before his death, the tonicity of the neck, jaws and abdomen had greatly diminished. He died following a convulsion, November 17. The short incubation in this case and long delay before beginning treatment are sufficient reasons for the failure of the antitoxin to save this patient's life.

CASE 19.—E. C., boy, aged 13 years, admitted to Bellevue Hospital, June 30, 1914, fourteen days previously had fallen and cut his head. Eleven days later he had abdominal pains and vomiting, which were regarded as due to appendicitis. On admission to the hospital he had marked opisthotonos, locked jaws and inability to swallow. A convulsion occurred on the slightest disturbance. He received 10,000 units of antitoxin intraspinally and 10,000 units intramuscularly. The patient's condition grew worse from the time of his admission and he died within twenty-four hours. The disease had evidently progressed too far to be influenced by antitoxin.

CASE 20.—W. R., physician, aged 53, was admitted to the French Hospital for herniotomy, which was performed, April 25. May 3, the patient complained that his neck felt stiff; May 4, this symptom was more pronounced and there was some rigidity of the jaw. Toward evening he could not open his mouth fully. He was given about 9,000 units of antitoxin intramuscularly. May 5, he had a general convulsion and became quite cyanotic; this was repeated twice, convulsions lasting about ten minutes. Five thousand units of antitoxin were given intraspinally and 15,000 intravenously. May 6, the patient had four convulsions, one lasting fifteen minutes. Five thousand units of antitoxin were given intraspinally. May 7, there were no further convulsions. The patient was able to take fluids by mouth, and there was much less rigidity. At 8 o'clock in the evening he had a sudden attack of pulmonary edema and rise of temperature. Later there were signs of acute cardiac dilatation. He died on the morning of May 8. This patient was very stout, and had chronic bronchitis and recurring attacks of asthma.

In judging the effect of antitoxin given intraspinally in this series of cases, it must be remembered that the patients were not selected, but that every case of tetanus reported was given the benefit of the treatment regardless of the clinical condition. The series, therefore, may be said to be fairly representative of the type of the disease occurring in and about the city of New York. A few of these patients would undoubtedly have recovered if the intraspinal injection of antitoxin had not been given or, indeed, without any treatment other than symptomatic. The results obtained, however, in the saving of life are so much more favorable than those in previous years, when large doses of antitoxin were recommended to be given by the intravenous and subcutaneous methods, that there can be no reasonable doubt that the low death rate, 20 per cent., here obtained was largely due to intraspinal dosage.

THE USE OF KAOLIN TO REMOVE BACTERIA FROM THE THROAT AND NOSE *

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Kaolin is used in immunologic and other investigations on account of its great adsorptive powers. The idea occurred to us that, on account of this adsorptive power, kaolin might be of use in removing bacteria from the nose and throat, especially in diphtheria carriers. Accordingly, with the cooperation of Dr. George H. Weaver, tests have been made in suitable cases in the Durand Hospital of the Memorial Institute for Infectious Diseases.

We have found that, when properly applied, kaolin in the form of a dry powder removes not only diphtheria bacilli, but also practically all bacteria from the nose in the course of from three to four days. For this purpose the kaolin is blown into the nose six or seven times a day at two-hour intervals by means of a rubber bulb attached to a glass tube, the free end of which tapers a little. The insufflation is repeated several times at each treatment. The success of this treatment appears to depend largely on the free and thorough distribution of kaolin over the nasal surfaces. In cases of more or less obstruction of the nasal passages, the removal of bacteria by kaolin insufflation is more difficult.

In order to secure the most thorough application of kaolin to the mucous membrane of the throat, patients, if old enough, are instructed to swallow as slowly as possible one-third teaspoonful of kaolin four or five times an hour during the day. In the case of adults and older children who are anxious to get rid of diphtheria bacilli, this method, which has been selected after trial of several others, involves no special difficulty. In the case of small children, it is more difficult to apply enough kaolin, and the plan of mixing the kaolin with sugar in the form of tablets is being considered. In a number of cases, in some of which there were a great many diphtheria bacilli in the throat, complete and apparently permanent removal has been accomplished by means of kaolin in the way described in from two to four days, the throat to a large extent being freed from all bacteria.

We have found also that the insufflation of kaolin into the nose in cases of rhinitis in scarlet fever appears to improve the condition rapidly and to remove streptococci and other bacteria quite promptly.

We have not found kaolin to be irritative; when taken into the mouth it gives rise to a feeling of grittiness.

It seems, then, that kaolin, and probably also other substances of a similar nature, may prove of value in removing bacteria from various surfaces of the body by virtue of mechanical adsorption. This may prove of advantage, not only in carriers, but also in conditions of acute infection. Our experience indicates that by means of kaolin, diphtheria bacilli and other bacteria are removed quite easily, especially from the nose.

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SODIUM FLUORID POISONING *

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Several cases of hydrofluoric acid poisoning have been reported.[1] Two well-known chemists were killed by the inhalation of the poisonous fumes of this acid.[2] But so far as we are aware, there is no case of sodium fluorid poisoning on record. The toxicologic effects of the metallic fluorids were studied by Rabuteau,[3] Müller,[4] Tappeiner,[5] Schulz,[6] Hewelke,[7] Siegfried[8] and Schwyzer.[9] Witthaus calls attention to the fact that notwithstanding its toxicity, sodium fluorid is used as a food preservative.

From the pharmacologic experiments it is clear that sodium fluorid is a general protoplasmic poison. It is strongly irritant to mucous membranes and usually produces corrosions. Owing to the fact that the fluorid ion precipitates soluble calcium salts, its toxic effect is similar to that of the oxalate ion. In mammals it causes salivation, gastro-enteritis, dyspnea, convulsions and stoppage of respiration and heart.[10] The fluorids on administration are deposited in the bones, which usually become white and brittle and contain crystals of calcium fluorid. It is well to call attention to the fact that fluorin, in very small traces, is a normal constituent of bone, teeth, milk, eggs, etc.[11]

Intravenous injections of from 0.05 to 0.1 gm. sodium fluorid per kilogram of dog are fatal. A 0.03 per cent. solution of this fluorid will destroy epithelium. A frog will be killed by 0.040 gm. of this salt.

The following is the history of a case of sodium fluorid poisoning:

V. R., girl, aged 19 months, swallowed some of "Peterman's Roach Food" which, according to the label on the box, contains from 40 to 50 per cent. of sodium fluorid. The child immediately began to feel bad and vomited. The child had partaken of food just before she swallowed the poison. The pulse was normal and the temperature normal. A tube was inserted into the stomach of the child and the stomach was washed repeatedly with a solution of lime water and calcium chlorid. About a gallon of lime water and calcium chlorid was used in this operation. It was noticed that there was some bleeding from the gums when the tube was inserted.

The child seemed to feel well after the stomach wash. A specimen of urine collected the following day showed a trace of acetone, but no albumin or casts. A few white blood cells were found. Seventy-two hours later the urine showed albumin, a few granular casts and some red and white blood cells. Fluorin was present in both specimens of urine, which were evaporated and tested according to the method given by Witthaus.

On the third day the temperature rose to 102 F., and the pulse became rapid. Analysis of a catheterized specimen of urine showed no albumin. A few white blood cells and a trace of acetone were present. This specimen did not contain any fluorin. The blood count revealed: hemoglobin,

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* From the Biochemical Department of the Pathological and Research Laboratories of the Western Pennsylvania Hospital.

[1] King: Tr. Path. Soc., London, 1873, xxiv, 98; Stimson: Brit. Med. Jour., 1899, ii, 1145, 1376.

[2] Witthaus: Manual of Toxicology, New York, William Wood & Co., 1911, p. 309.

[3] Rabuteau: Thèse de Paris, 1867.

[4] Müller: Dissertation, Greifswald, 1889.

[5] Tappeiner: Arch. f. exper. Path. u. Pharmakol., 1890, xxvii, 108.

[6] Schulz: Arch. f. exper. Path. u. Pharmakol., 1889, xxv, 326.

[7] Hewelke: Deutsch. med. Wchnschr., 1890, xxii, 477.

[8] Siegfried: Arch. internat. de pharmacod., 1901, ix, 225.

[9] Schwyzer: Jour. Med. Research, 1903, x, 301.

[10] Sollmann: Text Book of Pharmacology, 1913, p. 573.

[11] Jodlbauer: Ztschr. f. Biol., 1901, v, 487.

74 per cent.; red blood cells, 4,000,000; white blood cells, 15,200; polynuclears, 69 per cent.; lymphocytes, 22 per cent.; large mononuclears, 8 per cent.; eosinophils, 1 per cent. Microcytes were present. High colonic irrigation was resorted to, and the patient was given a dose of castor oil. The temperature fell on the following day and the pulse became normal. On the fourth day a specimen of urine was collected. It was acid in reaction, contained a trace of albumin, and gave quite a heavy acetone reaction. Microscopically a few red and white blood cells were present, but no casts. The urine did not reduce Fehling's solution, and did not react positively for diacetic acid. No fluorin could be demonstrated in this specimen. Since that time, examinations of a number of specimens of urine showed no albumin and but a very faint trace of acetone. On the eighth day the child was taken home from the hospital, to all appearances entirely well.

GANGRENOUS APPENDICITIS ON THE LEFT SIDE

A CASE OF VISCERAL TRANSPOSITION

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Gangrenous appendicitis occurring with visceral transposition is so uncommon that it is thought well to report the following case:

A married woman, aged 18, who had had no pregnancies and whose previous history was negative, had irregular menses during the past year. Jan. 30, 1915, she took a course of calomel. Next day she felt well. At 11 p. m. she was awakened by a sudden, severe abdominal pain, of a cramping, colicky nature, in the midabdomen, which continued all night and was accompanied by vomiting. Pain continued all next day, but became localized in the left iliac region and there remained constant with occasional vomiting. She took castor oil and applied hot applications with no relief.

February 2 she was driven to town. The trip took four hours. She vomited once and suffered much. Examination forty hours after onset revealed a medium-sized woman, plainly in severe pain; she leaned to the left side and kept the left thigh flexed. The menses were two days overtime. Temperature was 99½, pulse 120. The abdomen was full and tympanitic. The right side of the abdomen was not tender, and there was little or no muscle spasm. The patient was extremely tender and sensitive over the left side of the abdomen; percussion was almost unbearable; muscle spasm was pronounced. The patient complained of constant pain over the left lower abdomen. Urination and urine were normal.

The uterus was in second degree retroversion, a little large and softer than normal. There was no discoloration of the vaginal membranes. The cervix was soft. Deep palpation of the right adnexal region was not painful. There was some pain in the left adnexal region, and suspicion of a mass felt high up on left side. The breasts were normal.

A diagnosis of probable tubal gestation was made, and operation advised. This was not accepted till next morning, when, owing to increase in pain and fever, and after consultation, operation was accepted and performed fifty-eight hours after onset.

A median incision disclosed the intestines distended and a mass in the left iliac region and no sigmoid found there. The sigmoid was found in the right side and entered the pelvis from that side. The ascending colon and ileum were on the left side, and a gangrenous and perforated appendix lay under the cecum on the pelvic brim. The great omentum surrounded the cecum and appendix and was gangrenous, forming a mass the size of a goose egg. Peritonitis was already present. The appendix, greenish-black and partly liquefied, was removed and drainage inserted. No exploration of the upper abdomen was made, but later by palpation the liver was located on the left side and the apex beat of the heart was in the right fourth interspace. The case, therefore, was one of complete situs transversus. No pregnancy existed. Death occurred fifteen days later from peritonitis.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 1913)

XXIII

EVACUANTS—(*Continued*)

3. *EVACUANTS ACTING ON THE SMALL AND LARGE INTESTINES*

The Mercurials

The insoluble purgative mercurials, including calomel (mild mercurous chlorid), mass of mercury, (blue mass), and mercury with chalk (gray powder), have little action on the stomach unless their passage through it is delayed; their action on the intestine is mildly irritant, increasing peristalsis directly, and possibly increasing the secretion of the intestinal glands, thereby promoting peristalsis indirectly and causing soft stools with little or no pain, or with larger doses causing watery stools with some colic.

Only a small part of the dose of a mercurial is absorbed when evacuation is induced promptly, but when there is interference with the movement of the intestinal contents the mercurials are absorbed. If there is great interference with the passage of the intestinal contents after a large dose of calomel, or other mercurial salt, diuresis is induced. This interference is sometimes secured by administering opium or morphin with small doses of calomel, but if it occurs after large doses toxic symptoms referable to the irritant action of mercury on the kidneys may result.

Other steps should be taken to induce purgation should one of the mercurials fail to act, except when small doses are taken for their diuretic action.

The mercurials were long supposed to increase the secretion of bile, but this error arose from the fact that they protect the bile from decomposition by the intestinal flora, and prevent its absorption by hastening its passage through the intestines, so that it appears in the stools, if the dose be large enough to cause liquid evacuations. The green color of the stools in such cases is sometimes attributed to bile, but it is probably due to the formation of a sulphid of mercury.

There is much uncertainty concerning the reputed antiseptic action of calomel in the intestine. It does not destroy the bacteria in all probability, or greatly inhibit their growth during their stay in the intestine, but great numbers are removed during the purgation. It is a matter of common experience, however, that the condition commonly called "biliousness" (which does not require further description) is often relieved far more effectually even by a merely laxative dose of calomel, than by other evacuants which act as promptly as calomel. On the other hand, many persons find that headaches which are attributed to the products of intestinal putrefaction resulting from bacterial activity, are relieved quite as well by a quickly acting saline purge as by calomel. This does not disprove the claim that calomel has an especial action in the condition mentioned, for obviously, an active cathartic which sweeps out the intestinal contents with a large amount of water in a very short time must remove undigested and putrefying food and enormous numbers of bacteria, and thus give relief, but stress is laid on the fact that a mildly acting dose of calomel or other mercurial, which causes only a soft, not liquid stool, gives decided relief from certain forms of headaches which are not relieved by vegetable laxatives.

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* This is the twenty-third of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

Calomel often fails to relieve the diarrhea of infants which is caused by bacterial activity, but this does not prove that calomel is not bactericidal. The hypersecretion of mucus in such conditions affords excellent opportunities for the multiplication of bacteria after the calomel has passed through the intestine, and it is not feasible to keep the entire intestinal canal supplied with the drug, since so much would have to be used that systemic poisoning would ensue.[1]

Calomel is more useful in preventing the development of the more severe symptoms when taken in time, than in curing them after full development.

Mercury with chalk is less irritating than calomel; the chalk is said to interfere with peristalsis sometimes.

Calomel has little action on the uterus and is therefore not contraindicated in pregnancy. The action of blue mass is much like that of mercury and chalk.

THERAPEUTICS

The therapeutic indications for the use of the mercurial purgatives is sufficiently indicated in the discussion of their actions. Calomel, blue mass or mercury with chalk may be used when there is need for a mild laxative, or in somewhat larger doses when a cathartic is required. Headache due to intestinal putrefaction, the condition called "biliousness," putrefactive diarrhea, and in fact any condition attended with intestinal putrefaction, may serve as an indication for one of the mercurial purgatives unless there is a specific contraindication for their use.

DOSAGE

Calomel was used formerly in enormous doses for a variety of conditions and salivation was a common result, but with a more rational and more limited use of calomel this condition is now rare.

As a result of the reaction following the use of such large doses of calomel physicians went almost to an opposite extreme, and minute, but frequently repeated doses came into favor. If one desires to use such small doses from 3 to 5 mg. (1/20 to 1/10 grain) may be given every fifteen minutes until ten doses are taken. This method of administration sometimes induces nausea without any apparent advantage in the action, but it is possible that it secures a more prolonged, or more frequently repeated, antiseptic action in the intestine.

A dose of from 30 to 60 mg. (½ to 1 grain) will often act as a laxative after from eight to twelve hours, but it is preferable to give a saline laxative about four to six hours after administering the calomel unless purgation has taken place. Doses of from 0.15 to 0.30 gm. (2½ to 5 grains) of calomel induce severe purgation with copious watery stools attended with severe griping and a considerable degree of nausea, but such doses have little advantage over smaller doses followed by a saline purgative which causes an equally active purgation with much less discomfort.

From 8 to 15 mg. (⅛ to ¼ grain) of calomel given to a child at the beginning of an attack of diarrhea, and followed by doses of 5 mg. (1/10 grain) twice a day for several days, will often avert more serious symptoms.

It is probable that doses of calomel larger than 0.12 gm. (2 grains) are never required for an adult; should this fail to cause purgation dependence should be placed on other evacuants, particularly the salines.

Sodium bicarbonate is commonly added to calomel under the mistaken idea that it is necessary to combine an alkali with the mercurous salt to prevent its conversion into a mercuric salt by the gastric juice. The amount of sodium bicarbonate usually employed is wholly inadequate to neutralize more than a small part of the gastric juice in the stomach, and no such change takes place when calomel is subjected to the action of the gastric juice without neutralization.

Mass of mercury or mercury with chalk may be given in doses of 0.25 gm. (4 grains).*

SALINE EVACUANTS

When a concentrated solution of one of the slightly diffusable salts is taken into the stomach it becomes diluted with the gastric secretion, or, if the stomach was previously empty, it withdraws fluid from the cells of the stomach, causing irritation, with nausea and vomiting at times.

The rate at which this dilution in the stomach occurs in the absence of a sufficient amount of fluid previously present, will depend to a considerable degree on the relative amount of fluid in the blood and tissues. If they contain an abundance of water, secretion will be active as a rule, and when the solution of the salt has become fairly dilute it will pass into the intestine, but if the blood and tissues contain relatively little water gastric secretion is slow and nausea and vomiting may result. This is best illustrated by the protocols of two laboratory experiments (hitherto unpublished).

> Two dogs, A. and B., received an equal amount of sodium sulphate. Dog A. received the salt in concentrated solution after having been deprived of water for twenty-four hours, and vomited within about five minutes; he even refused water owing to nausea, but when enough water was passed through a tube into his stomach to dilute the salt somewhat, he drank water almost immediately. Dog B. was given the same amount of salt in dilute solution after having had the usual allowance of water; he showed no signs of nausea, and ate food at once (showing absence of nausea).

When a solution of salt has passed into the intestine it retains its water of solution until its concentration has been so reduced as to be approximately equal to that of the blood, the distention of the intestine by the fluid causing peristalsis, the action being exerted in the small and large intestine.

The salts of this group are not absolutely nonabsorbable, and when peristalsis is prevented by any means the solutions may be absorbed into the circulation completely. If the absorption takes place, as it always does to some slight extent, the salt is excreted by the kidney, and it may induce diuresis if the absorption has been sufficiently rapid, for the renal epithelium, in marked contrast to that of the intestine, is readily permeable to most of these salts.

Occasionally, large dc [illegible] sulphate have been absorbed in [illegible] of the bowel more rapidly than they could be eliminated by the kidney, and have given rise to symptoms of poisoning, and in a few instances death has resulted, but this accident is not to be feared except when obstruction of the intestine exists, and, of course, no purgative should be given in such conditions.

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[1] For a discussion of the subject of intestinal antisepsis see Harris, Norman M.: Intestinal Antisepsis, The Journal A. M. A., Oct. 12, 1912, p. 1344.

* Owing to lack of space the materia medica of this group is omitted from The Journal. It will be included when this series is published in book form.

When magnesium sulphate (Epsom salt) is absorbed rapidly, or is injected intravenously, in sufficient amounts, it depresses the nervous system and induces complete narcosis with muscular relaxation. The depressant action following the subcutaneous injection is now being utilized in the treatment of the chronic form of tetanus with reported success. The absorption from the intestine is probably too slow in any case to induce serious poisoning unless the kidneys are diseased or marked depression of the central nervous system previously exists. The other purgative salts are devoid of toxic actions after absorption. Magnesium citrate should be open to the same objection as the sulphate, but no cases of poisoning have been reported after its use, so far as we are aware.

The precise mechanism of the purgation induced by these salts is not understood fully, but there is no reason to doubt that their action results largely from their capacity for retaining water and thus distending the bowel. This also explains why concentrated solutions require so much longer time than dilute before causing purgation, and twenty hours may elapse before their effect is induced, whereas dilute solutions are commonly effective within three hours.

The purgative salts have a disagreeably bitter taste, and not infrequently concentrated solutions are taken in order to lessen the time required to drink them; when they are taken in this way a glass of water should be taken immediately to dilute them in the stomach, unless the removal of an excess of water from the tissues is the object in view, in which case concentrated solutions are usually employed.

It is probable that moderately dilute solutions would be more serviceable in such cases than the concentrated ones commonly used. The amount of fluid which can be removed by purgation is very much greater than that required for the moderate dilution of the salt, and the absence of gastric disturbance and the much more rapid effect of the dilute solutions suggest that they might be employed even in dropsical conditions.

Magnesium sulphate is partly converted into carbonate in the intestine, and the liberated sulphuric acid combines with the alkalies which are absorbed and excreted in the urine; thus depriving the body of them. This becomes a matter of importance when the salt is administered continuously for some time, and it is customary in such cases to administer sodium bicarbonate to make up the deficiency. This loss of alkali does not occur with the use of sodium sulphate or the other purgative salts.

The administration of the sulphates (Epsom salt or sodium sulphate) is followed by the formation of some hydrogen sulphid in the small intestine, and this may give rise to some discomfort, with rumbling.

The insoluble magnesium carbonate and the oxid, or calcined magnesia, are partly converted in the stomach into the soluble chlorid, and in the small intestine partly into the soluble bicarbonate. Should they fail to undergo the change they do not cause purgation, and an accumulation of the insoluble carbonate may occur after large doses and cause intestinal obstruction.

Magnesium oxid has an advantage over the carbonate in that it does not yield carbon dioxid gas when neutralized in the stomach. The oxid and carbonate have the advantage over the soluble salts of this group, being tasteless, and requiring a less bulky dose.

Potassium citrate and bitartrate are absorbed somewhat more rapidly than the other purgative salts, so that small doses induce diuresis without purgation, while large doses cause both, but at best they are only mild laxatives, rarely giving rise to watery stools, but they are active diuretics.

Sodium chlorid or the ordinary table salt in proper dilution is also useful as a laxative and may at times advantageously replace other objectionably bitter salines. The dose, about an even teaspoonful (from 4 to 5 gm. or about 60 grains), should be dissolved in half a liter (1 pint) or more of water and taken on an empty stomach.

Various acid fruits are mildly laxative, partly because of the citric and malic acids which form citrates and malates in the intestine, and partly because of their cellulose, pectin and sugars which are in part indigestible and absorb liquid, thus increasing the bulk of the intestinal contents in much the same way that the purgative salts do.

THERAPEUTIC USES

The uses of the saline laxatives are indicated largely in the discussion of their actions. They are useful when for any reason a rapid evacuation of the bowels is indicated, as in poisoning by slowly absorbable substances which cannot be removed from the stomach; to remove bacteria and fermenting masses of food; to remove dropsical effusions, and in simple constipation.

They have an especial usefulness in that they do not cause irritation when used in dilute solutions.

This would be an appropriate place to discuss the use of purgative mineral waters were it not for the fact that there is no obvious advantage in their use. There can be little doubt that the extraordinary reputation enjoyed by many of these waters depends on the success attained in the treatment of patients at the springs, where special attention is given to all the habits of life, and where only the most pleasant conditions obtain. There is no satisfactory evidence that the ordinary purgative mineral waters have any important action not possessed by a simple solution of the same salts made artificially, and, in fact, many of the mineral purgative waters are more or less artificial, since some are mixtures of waters from different springs while others consist of evaporated spring water, and during the process of evaporation changes occur in the salts present.

One especial advantage which natural mineral waters have over the solutions of purgative salts as they are too often taken is that they are very dilute, and the patient is thus required to take a fairly large amount of water with them. This advantage can be secured so easily, however, by attention to the proper dilution of purgative salts that it is not sufficient to justify the expense of the natural waters.

Magnesium sulphate is largely used in obesity because the magnesium ion combines in part in the intestine with fatty acids which are thus prevented from being absorbed. The tasteless magnesium oxid and carbonate are often used as laxatives in children, especially when it is desired to neutralize the hyperacidity of the stomach.

The normal sodium phosphate is alkaline in reaction and when it is desired to increase the acidity of the urine the acid phosphate, NaH_2PO_4, is to be preferred, or the official di-sodium phosphate may be used adding about three times as much dilute phosphoric acid to it.

A concentrated solution of magnesium sulphate is used as a local application in inflammatory conditions.

DOSAGE

The amount of the several salines required to accomplish a given purpose depends largely on accompanying factors, such as the degree of dilution and the susceptibility of the individual, which vary considerably.

Epsom salt or magnesium sulphate. the effervescent preparation of this substance and sodium sulphate, or Glauber's salt, are usually given in doses of 16 gm. (240 grains) or more, dissolved in from one-half to a full tumbler of cold water. Potassium and sodium tartrate, or Rochelle salt, is given in doses of 8 gm. (120 grains). Sodium chlorid, or ordinary "table salt," and sodium phosphate are given in doses of approximately 4 gm. (60 grains), well diluted with water. The effervescent preparation of sodium phosphate is usually given in double the dose of the simple salt or about 8 gm. (120 grains).

Magnesium oxid—heavy or light—is given in doses of 2 gm. (30 grains) and the carbonate in somewhat larger amounts, 3 gm. (or 45 grains). Because of the fact that these two substances are insoluble in water they must be administered in the form of mixtures with water or in the case of the heavy magnesium oxid the dry powder can be placed on the tongue and washed down with cold water.

The solution of magnesium citrate is usually dispensed in bottles sufficient for one dose which is drunk as an effervescing draught. Potassium bitartrate, one of the more agreeable of the salines because of its acid taste, is given in doses of 2 gm. (30 grains) mixed with water. Potassium citrate may be given in about the same dose 2 gm. (30 grains) and the effervescent preparation in double this dose—4 gm. (60 grains).

The administration of the salines is somewhat simplified in that their action is enhanced by the presence of water and that, whether water-soluble or not, they are preferably given with copious draughts of water.

Alkaloidal Evacuants

Physostigmin

It is apparent from the discussion of the physiology of the gastro-intestinal movements that any drug which stimulates the parasympathetic nerves (vagus and erigens) will cause intestinal peristalsis, or contraction of the muscles of the intestinal walls.

We have a number of agents which stimulate the endings of these nerves, or which increase their excitability to the normal stimuli which reach them through the blood, but these drugs have other actions which usually overshadow their actions on the intestine and prevent their use as evacuants.

Pilocarpin and physostigmin stimulate the vagus and erigens, and induce active movements, not only in the intestine but also in the stomach and uterus. Physostigmin probably acts directly on the smooth muscle of the intestine rendering it hyperexcitable to normal stimuli, and thereby promoting peristalsis. Large doses cause tonic ring-like contractions of the intestine and interfere with the passage of the contents.

Large doses of physostigmin cause violent uterine contractions which may be tonic in character.

There seems to be little reason for the use of any of the pharmaceutic preparations of physostigma, since they contain eseridin and calabarin in variable amounts in addition to physostigmin. Eseridin resembles physostigmin in its physiologic actions, but it is weaker, and calabarin has a strychnin-like action.

Physostigmin sulphate is hygroscopic and the solution decomposes rapidly with the formation of a ruby-red substance known as red resin. The salicylate is soluble in about 150 parts of water. It is somewhat more stable than the sulphate in solution but it also undergoes the same decomposition.

THERAPEUTIC USES

The actions of physostigmin on the intestine are usually overshadowed by its effects on the central nervous system, and it is far from satisfactory as an evacuant, its use as such appearing to depend rather on a forlorn hope in the search for a dependable purgative after abdominal operations. The use in man has been encouraged perhaps by the observation that it is a very much more valuable purgative for the herbivora.

The indication for which physostigmin is used as a purgative is atony of the intestine. It should not be used in the presence of inflammation of the intestine or when there is mechanical obstruction. The local and systemic actions of physostigmin are counteracted by atropin in doses of 1 mg. ($\frac{1}{60}$ grain), which may be repeated once or twice if necessary.

DOSAGE

Physostigmin salicylate is used as an evacuant in doses of 1 mg. ($\frac{1}{60}$ grain) and doses of even 2 mg. ($\frac{1}{30}$ grain) are sometimes given, but Sollmann states that such doses are somewhat dangerous, this being especially true in the presence of depression of the central nervous system.

Atropin; Strychnin

Atropin and strychnin are never used alone as evacuants, but both of them are added to other substances which induce purgation, and atropin is used to relieve spasm of the intestine which interferes with the passage of the intestinal contents.

Small doses of atropin are said to stimulate Auerbach's plexus, while large doses depress it, and all doses which have any effect depress the parasympathetic (vagus and erigens) endings in the intestine. This is of benefit when overstimulation causes tonic contraction instead of normal peristaltic waves.

There is a possible disadvantage in the long-continued use of even very small doses of atropin which is generally overlooked or disregarded, but which is worth considering. Atropin depresses the vagus endings in all of the organs which it supplies, and even small doses tend to abolish those parts of the gastric, pancreatic and biliary secretions which are under nervous control. It is certain that the minute amount of atropin ($\frac{1}{10}$ mg.—$\frac{1}{650}$ grain) commonly used with aloin in laxative pills has no very pronounced action on these secretions when a single dose is taken, but, on the other hand, we have no knowledge of the effects of its long-continued use, and in the absence of definite advantages it would be better to omit it when laxative pills are to be taken for prolonged periods.

Strychnin is used in doses of 1 mg. ($\frac{1}{60}$ grain), which are correspondingly larger than those of atropin, and it seems to be useful through its stimulation of Auerbach's plexus.

Extremely small doses of nicotin stimulate, large doses paralyze, the ganglia of the enteric system, and it is a matter of common observation that smoking often promotes peristalsis. Nicotin is not used therapeutically, however, for this purpose.

(To be continued)

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SATURDAY, JUNE 12, 1915

A TEST OF PHYSICAL FITNESS

The conservation of national vitality has become a popular theme in this country. It is a part of a still greater problem which is designated as national efficiency. The old fatalistic belief in the inevitable occurrence of ill health and early death in certain instances has given way to the rapidly growing conviction that premature death and disease are for the most part avoidable and that it is within the power of man to rid himself of many of the enemies to comfort and good health. The aim of hygiene is to approximate, with respect to health, the ideal of a life free from illness and disability of every kind.

In this effort to bring about a maximum fitness of mankind, many agencies are being brought into play. Our physical environment is being subjected to closer scrutiny; and by means of private and public regulation, a protection is frequently rendered to mankind in ways more important than that provided by the work of police or fire departments. The abatement of nuisances, inspection systems, regulation of labor and trades — these are a few reminders of the vigorous attempts at the conservation of health through public hygiene. To this may be added the improvement of the social environment and the effects of what has been called semipublic hygiene, that is, the disciplines relating to institutions and the medical profession. The diffusion of knowledge regarding the laws of health and its control, the care of individuals who are for some reason unfitted to adjust themselves to the needs of the day, along with numerous other potential agencies for bringing about health, are illustrative of the prophylactic tendencies of the times. It is being found that "philanthropy and profit are not always antagonistic." Finally, public hygiene is receiving the support of personal hygiene, without which it must remain ineffective. Here nutrition, fresh air, exercise and rest, sports, and the combat with the social diseases find their place. Some one has well remarked that the present world-wide interest in personal hygiene and physical education is not due to any startling discoveries, but to the rediscovery of the importance of truths long insisted on by the medical profession. The knowledge of the value of fresh air and good food is old. It is the application which is new.

A healthy organism calls into play almost innumerable functions, both physical and mental. How to measure the efficiency with which they are carried out and the fitness of the individual to undertake or endure them has become a problem of the day. Mental capacity has been investigated by a variety of standards, some of which have gradually become widely accepted. As an instance of how the quantity and quality of intellectual product per unit of time can be studied, we may refer to such psychologic tests as the naming of colors, cancellation, addition, mental multiplication, typewriting, grading of various performances, and exercises in English composition. The ability to accomplish set tasks of this sort varies with environmental as well as personal and hereditary conditions. The physical working capacity of the individual can likewise be measured by a variety of apparatus designed to test muscular strength.

The fitness of man involves something more than the ability to do sums or lift dumb-bells. The propaganda for health and increased vitality obviously calls for some added mode of measuring the results of supposed benefits and menaces, long-continued activities, such as physical training, gymnastics, play, athletics and good ventilation on the one hand, and fatigue-producing activities on the other. The record of the incidence of disease, the school record, the blood count, etc., are not a sufficient criterion. Among the added tests which are intended to show the beneficial or depressive effect of various conditions supposed to affect health is the "blood ptosis test."[1] This has been designed by Dr. C. Ward Crampton of the Bureau of Educational Hygiene in the New York City Department of Education to measure a function easily wearied and damaged by unhygienic influences. It is based on the fact that the vasomotor control of the splanchnic area in man experiences a change of adjustment when the body is moved from the horizontal to the upright standing position. According to Crampton, the efficiency of this control is measured by placing the subject in a horizontal position and taking the systolic pressure in the brachial artery. The subject is then required to stand, and without removal of the cuff, the blood pressure is taken in a vertical position. In a perfectly strong and vigorous subject the splanchnic vasotone will increase and the blood pressure will be found raised about 10 millimeters of mercury. In an individual weakened by dissipation, overwork, lack of sleep, or by the incidence of disease, the blood pressure will tend not to rise but to fall. It was found that in the vigorous subjects the heart rate did not increase on standing, and in the wearied subjects it increases as much as forty-four beats per minute. It was further found that this difference varied with the blood-pressure differences and in some cases took the place of the blood-pressure variation. In other words, the same subject under the same conditions would show a weakness sometimes by a decrease in blood pressure, and at other times by an increase in heart rate, and vice versa. After further observation, it was determined that a decrease of 1 millimeter of mercury had a value of an increase in heart rate of approximately two.

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[1] Crampton, C. W.: The Blood Ptosis Test and Its Use in Experimental Work in Hygiene, Proc. Soc. Exper. Biol. and Med., 1915, xii, 119.

By taking into account both of these features and adjusting the changes in heart rate into terms of corresponding blood-pressure variations, Crampton has devised a percentage scale of vasomotor tone ratings which have been put to the test by numerous observers. Experience already shows that the measurement of the changes in the performance of the heart and the vasomotor system in different postures may reveal damages before subjective or objective symptoms are apparent. For example, the New York State Commission on Ventilation has recently reported that a very high room temperature, such as 86 F., with 80 per cent. relative humidity, produces a marked fall in the Crampton value of subjects.[2] The use of fans afforded some improvement. The new test obviously does not measure numerous important features, such as the structural condition of the heart; yet it seems likely to have considerable value in furnishing added data for the estimation of what we may, for the want of a better term, call physical fitness.

KAOLIN IN THE TREATMENT OF BACTERIA CARRIERS

Aluminum silicate, kaolinum, fuller's earth and bolus alba are various names under which the essentially same substance is familiar to physicians. In 1906, Stumpf of Wurzburg published a detailed report of his experience with it in cholera under the title "A Reliable Method of Treating Asiatic Cholera and Severe Infectious Cholera Morbus, and the Importance of Bolus Alba (Kaolin) in the Treatment of Certain Bacterial Infections." His attention was early attracted to the possible disinfecting virtues of clay by his observation that cadavers exhumed after being buried in clay soil were always in a remarkable state of preservation in comparison with those in other soil. At that time his experience with the kaolin covered eight years. He believed that it owed its efficiency in bacterial infections to its action in depriving the bacteria of a suitable culture medium while mechanically burying them alive, separating them from the mucosa and other tissues by a protecting, comparatively impermeable coating. He applied it as a remedy to extensive septic wounds, putrid leg ulcers and the like. Stumpf experimented on himself to determine the harmlessness of the finely pulverized kaolin taken internally in large amounts, and found that it was well tolerated. He administered it in cases of cholera, and found that colics and tendency to vomit were at once arrested. The dose given was 125 gm. of the most finely pulverized kaolin poured on top of half a tumbler of water. After the powder sank to the bottom of the glass, it was thoroughly stirred in with a spoon, and the whole amount taken at once or within a few minutes. After an interval of three hours, the same dose was repeated. Infants were given proportionately smaller doses.

More recently, kaolin has been given as a gastric astringent; it has been much used in the treatment of cholera and dysentery, and its harmlessness has suggested its use as a substitute for bismuth in taking Roentgen-ray pictures of the gastro-intestinal tract when bismuth cannot be tolerated. In the present European war, the physicians in the German and Austrian armies are using large amounts of kaolin to combat dysentery and cholera, and according to Stumpf,[1] the microscopic findings in the feces of the patients treated fully warrant its use. Wolff-Eisner,[2] from his experience in the war, believes that kaolin has been triumphant in the treatment of cholera. He tabulates twenty-five cases, showing almost immediate stopping of diarrhea in dysentery and typhoid after a dose of a double spoonful each of kaolin and charcoal had been taken from one to three times a day. In severer cases, the proportion of kaolin was doubled. He regards the kaolin-charcoal treatment as a kind of immunotherapy, basing his belief on Hofmeister's dictum that all the phenomena of immunity are colloid chemical reactions. He believes that the kaolin binds toxins which are beyond the reach of serotherapy. The method was applied to healthy carriers and was apparently successful, as no bacilli could be found in the stools after the treatment was administered.

Von Willuki,[3] encouraged by the use of kaolin in the treatment of cholera and dysentery by the methods advised by Stumpf, has used it in two cases of paratyphoid bacteria carriers. In both cases, following treatment with bolus alba, the organisms quickly disappeared from the stools.

Of special interest, therefore, is the note elsewhere in this issue[4] by Hektoen and Rappaport. By insufflating kaolin powder in the nose, they are able to remove the diphtheria organism as well as streptococci from the nasal mucous membranes. The swallowing of the powder is followed apparently by a rapid disappearance of the diphtheria organism from the throat. These results are significant.

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[2] Some Results of the First Year's Work of the New York State Commission on Ventilation, Am. Jour. Pub. Health, 1915, v, 101.

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[1] Stumpf, J.: Bolus Alba in Diarrhea, Dysentery and Cholera, München. med. Wchnschr., 1914, lxi, No. 40.

[2] Wolff-Eisner: Kaolin Charcoal Treatment of Diarrheic Processes, Therap. d. Gengenw., 1915, xvii, 92.

[3] Von Willuki: Bolus Alba in Paratyphoid, München. med. Wchnschr., 1914, lxi, 2356.

[4] Hektoen, L., and Rappaport, B.: The Use of Kaolin to Remove Bacteria from the Nose and Throat, THE JOURNAL A. M. A., this issue, p. 1985.

THE COMPOSITION OF DIARRHEAL STOOLS

A diarrheal stool is an obvious symptom of some disturbance in the functions of the organism. How serious or significant the diarrhea may be usually depends on a number of attending circumstances. One can easily postulate a variety of conditions, each of which might lead to a copious or abnormal evacuation of the bowel, yet be of quite unlike moment to the organism in which they occur. A nervous reaction may thus lead to an accelerated peristalsis and result in an increased defecation without further import; the presence of toxic micro-organisms in the intestine may provoke undue secretion followed by abundant evacuations and loss of body constituents which would ordinarily be retained or reabsorbed; abnormal digestive functions with attendant putrefaction and fermentation may produce a diarrhea with the enforced loss of what would be nutrient products under normal alimentary conditions.

It seems almost unbelievable that so little is known respecting the relation of the chemical composition of abnormal stools to the general nutritive welfare of the individual. The feces are frequently the objects of careful scrutiny macroscopically and microscopically with the object of discovering some offensive invader of the alimentary canal or some harmful foreign substance. Professor Holt and his collaborators[1] at the Babies' Hospital and the Rockefeller Institute in New York have lately called attention to the paucity of data regarding the diarrheal stools of infants in comparison with those which were normal.

Superficially, one might assume that very loose stools differ from normal ones only in that they contain more water. The new investigations[1] show how far from correct such a haphazard generalization may be. Not only do diarrheal stools contain a large amount of water, but also the quantity of dry matter lost daily is much greater than that lost in stools of normal consistency. The fats in particular vary in most cases directly with the amount of water leaving by the bowel. Thus, on an average, the loss of fatty matter in the normal feces of infants at the Babies' Hospital was 12 per cent.; in the loose stools it reached 40 per cent. The nitrogenous substance also may reach an amount equal to two and a half times that lost in normal stools. A considerable amount of it is presumably not derived from the food, but represents portions drained away from the body in the intestinal secretions. This is attended by a withdrawal of inorganic salts from the body under conditions in which it might never be suspected but for the evidence secured by chemical analysis.

There are further facts which point to suggestions in the direction of dietotherapy. An equivalent of over 80 per cent. of the intake of salts in the diet may disappear with diarrheal feces. This may include, in individual cases, much of the calcium and all of the magnesium of the diet. Chlorin, potassium and sodium are rarely found in the stools of the healthy; in diarrheas they make their appearance. Holt and his co-workers have recorded negative balances for some of these elements, that is, losses from the body itself.

These facts are not entirely new in the domain of clinical chemistry; but they deserve emphasis here because practitioners too often fail to take them into account in their treatment. It is, as the New York pediatrists point out, not only water, but some of the inorganic salts that need to be replaced when an infant has been depleted by a severe and prolonged diarrheal attack.

RECENT METHODS FOR THE TREATMENT OF SEWAGE BY "ACTIVATED SLUDGE"

Experiments on an entirely new method of sewage treatment have been made during the past year in England, and are being continued in both England and the United States. The new process is known as the "activated sludge process" of sewage oxidation and sedimentation. Its significance may be made clear by a brief description of a typical sewage treatment plant making use of most of the advances in the art prior to the advent of the activated sludge experiments.

The city of Baltimore has constructed and is now operating in part one of the largest sewage treatment plants in the United States. Roughly, this plant includes about 6 acres of preliminary sedimentation tanks, varying from 13 to 25 feet deep; 30 acres of coarse stone sprinkling filters, about 8½ feet deep, and about 3 acres of final sedimentation tanks. The preliminary sedimentation tanks remove most of the settleable solids from the sewage, the sprinkling filters partially oxidize the remaining organic constituents of the preliminary tank effluent, and the final sedimentation tanks remove most of the oxidized settleable solids from the sprinkling filter effluent. In a general way, the object sought in the new activated sludge experiments is to do in a single set of tanks that which is now being accomplished by the sequence of preliminary tanks, oxidation-filters and final tanks. The realization of this object would mean that proposed new sewage treatment plants could eliminate the sprinkling filters and the final tanks. It would also mean that existing plants could greatly increase their present capacity for future population at a relatively low increase in cost.

The English experiments on activated sludge, and some of the proposed American investigations have been outlined in a recent publication.[1] In Manchester,

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[1] Holt, L. E.; Courtney, Angelia M., and Fales, Helen L.: The Chemical Composition of Diarrheal as Compared with Normal Stools in Infants, Am. Jour. Dis. Child., March, 1915, p. 213.

[1] Engineering Record, 1915, lxxi, 288, 521.

England, in 1913, partly at the suggestion of Dr. Gilbert J. Fowler, and partly on their own initiative, Messrs. Edward Ardern and W. T. Lockett began the series of experiments from which the new process has evolved. They found that in order to nitrify completely an average sample of Manchester sewage, it was necessary to apply continuous aeration for five weeks. Experiences similar to this had caused many investigators in the past to give up the idea of tank aeration as being much beyond the economic limit. Ardern and Lockett, however, decanting the supernatant and retaining the oxidized sludge, added a further sample of crude sewage, and continued aerating. Nitrification of this second portion occurred in a much shorter period of time. Encouraged by this discovery, the experimenters continued the accumulation of larger amounts of oxidized sludge, and finally became convinced that the presence of such accumulation of sludge deposit "had the property of enormously increasing the purification effected by the simple aeration of sewage."

Some later experiments with a cask of 50 gallons' capacity showed that by four hours' aeration the free ammonia in Manchester sewage could be reduced from 34.6 parts per million to 2.1 parts per million, and the nitrates, expressed as NH_3, increased from 0 to 16 parts per million. Subsequently, Melling and Duckworth made similar tests on a much larger outdoor scale and secured with three hours' aeration a reduction of free ammonia from 28.6 parts per million to 0.1 part per million, and an increase in nitrates + nitrites, expressed as N, from 1 part per million to 11.1 parts per million. These results are significant. Certainly the nitrification produced is ample to assure a thoroughly stable effluent.

This work, however, has all been on what is known as the "fill and draw" method of tank treatment, and the fill and draw method, as applied to the activated sludge process, consumes a large amount of hydraulic head, produces a low operation efficiency because it is an intermittent process and also necessitates periods of nonoxidation which possibly reduce the efficiency of the activated sludge. The importance, therefore, of translating the activated sludge process from the fill and draw to the continuous flow method, and of bringing the cost of operation, by this and other improvements, into the region of workable values, is obvious.

The "continuous flow" problem is the one on which attention seems to be most sharply focused at present in the current English and American experiments. In the United States, the Public Health Service is conducting, jointly with the Baltimore Sewerage Commission, experiments involving primarily a continuous flow type of tank. It is understood, also, that the Milwaukee Sewerage Commission is devoting some effort in this direction. The most important result which will be determined by these experiments is, of course, the matter of annual cost per unit of population or per unit of sewage flow. This item will eventually decide whether the activated sludge process is to replace or to eliminate oxidation filters from the modern sewage treatment plant.

The problem of the treatment of sewage of growing communities, especially of those cities located on water courses used as a source of water supply, is one of vital importance to the public health. The great decrease in the cost of construction under the new system is so large that it is quite possible that without an increase in cost over the old methods, it may be found feasible by disinfection methods to render safe the final effluent for discharge into water courses.

WILLIAM WITHERING AND DIGITALIS

In a recent appreciation of the work of William Withering, Cushny[1] describes the way in which Withering introduced the scientific use of digitalis to the medical profession. In 1741, Withering was born in Shropshire, England; in 1762 he entered the University of Edinburgh, and graduated in 1766. He began practice at once in Stafford, became attracted to botany, and in 1776 published a "British Botany." In 1778 he published an article on scarlatina anginosa, and in 1785 a book which Cushny believes entitles Withering to lasting fame. The book is entitled "An Account of the Fox Glove and Some of Its Medical Uses; with Practical Remarks on Dropsy and Other Diseases." Previous to this period, digitalis is occasionally mentioned in medical literature, for example, as an external application in scrofula, and internally in phthisis. Since the time of publication of Withering's book, its action in dropsy and on the heart has been generally recognized.

Withering states that his attention was drawn to digitalis in 1775 by its use as an ingredient of a complex cure for dropsy. He accordingly prescribed it in his dispensary, at first as a decoction of the leaves, later as an infusion, and on some occasions as a powder. The doses prescribed were large, but they proved a sovereign remedy in the cases of dropsy which he reports. Its use quickly spread.

After ten years' trial of this new remedy, Withering published an account of his work. "The deliberation with which the discovery was brought before the world," according to Cushny, "gives a delightful impression of the easy life of the eighteenth century. Now we find a new remedy exploited after an experience of months," he says, "sometimes only of weeks. Perhaps a return to the old and more cautious method is too much to wish for, but I doubt if therapeutics would suffer from it."

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[1] Cushny, A. R.: William Withering, M.D., F.R.S., Proc. Royal Soc. Med., 1915, viii, p. 85 of section on history of medicine.

Withering's book contains reports of 163 cases, in which he had prescribed the remedy himself, and a number of others in which his friends had used it at his suggestion. He used digitalis only as a diuretic, but seemed to realize that it acted on the heart, for he affirms that "it has power over the motion of the heart to a degree yet unobserved in any medicine, and that its power may be converted to salutary ends."

Withering began to have threatenings of pulmonary tuberculosis about 1780. In 1792 he tried the effect of a warm climate, spending the winter at Lisbon. He was not favorably impressed, however, with this place as a resort for tuberculosis. He states very strongly that "phthisis is infectious." Later he remained at his home during the winters, where he kept his library at a constant temperature of 65 F. by means of flues; the windows were double sashed, and every movement was avoided as far as possible. "This treatment," says Cushny, "is an interesting contrast to the open-air method of today." Osler, discussing these points, believes that the treatment was likely "not inappropriate for a patient in the third stage of tuberculosis."

Withering died in 1799, and was buried in the old church at his home at Edgbaston, which contains a monument inscribed with his name and encircled with Witheringia, and with the purple foxglove, the plants of which he wrote. He was a man of many interests: a chemist, a botanist and an antiquarian, but above all, a physician.

THE NATURE OF BACTERIA—AN EARLY AMERICAN VIEW

For many years in the earlier history of bacteriology the micro-organisms which are its subject-matter were claimed for both the animal and vegetable kingdoms by the workers in the different domains of science. To Ehrenberg,[1] the pioneer student of bacteria, who knew little else to do with them except to classify them, they were animalcules, "devoid of an intestine and without external organs." The power of movement with which many of these minute forms were endowed placed them outside of the possibility of a plant nature to the early observers. It was the more careful study of the lower fungi that first drew attention to the similarity between bacteria and these plant forms.

The current accounts of the development of our knowledge of the bacteria state that, with the possible exception of Dujardin, all observers up to 1852 had looked on bacteria as belonging to the animal kingdom. In that year Perty announced that of these minute organisms, some belong to the animal and some to the vegetable kingdom, while a certain number appeared to him to stand on the borderland between the two. It was, above all, the eminent botanist Ferdinand Cohn who, in 1854, insisted on the plant nature of these micro-organisms. He remarked that the individuals grow and divide like plant cells; that they agree with these in structure, and particularly in the manner of fruit-forming; and that they pass through a series of intermediate steps into a higher class — that of the colorless algae. The studies of Naegeli as early as 1857 pointed in the same direction. In 1859 Davaine[2] also suggested the vegetal nature of the vibrio.

It has lately been asserted[3] that priority in the matter of identifying micro-organisms as plant forms really belongs to a well-known American biologist, Joseph Leidy, who is today remembered in particular for his notable contributions to the science of paleontology. In a paper which he presented to the Philadelphia Academy of Natural Sciences in October, 1849, Leidy remarks how, on considering that the conditions essential to vegetable growth are the same as those indispensable to animal life, he felt convinced that entophyta would be found in healthy living animals as well as, and probably as frequently as entozoa. Then follows the description of "two species of vibrio" detected by him in the alimentary tract of animals. "Even these moving filamentary bodies belonging to the genus Vibrio," says Leidy, "are of the character of algous vegetation. Their movement is no objection to that opinion, for much higher confervae, as the Oscillatorias, are endowed with inherent power of movement, not very unlike that of the vibrio."

Wherever the borderline between animal and plant forms may be placed in the future, these pioneer observations and the conclusions of Leidy respecting the place of what we now regard as bacteria among the diverse groups of living things deserve to be recognized and placed on record.

Current Comment

THE BRITISH MEDICAL ASSOCIATION WINS

The case of Stevens *vs.* the British Medical Association has been decided finally in favor of the Association. As will be remembered,[4] C. H. Stevens put on the market under various names ("Sacco," "Stevens' Consumption Cure," "Lungsava") a fraudulently exploited "consumption cure" containing a hypothetic African herb "umckaloabo." The British Medical Association, in its work of giving the public facts regarding fraudulently exploited nostrums, exposed Stevens' preparation and charged him with being a swindler and a quack who had foisted on the public a worthless remedy. This was in 1909. Stevens brought action for libel against the British Medical Association, which defended its observations on the claim that they were fair comment on a matter of public interest. At the first hearing of the case in 1912, the jury failed to agree; at the second hearing in 1914, the jury declared that the words were not libelous, that the comments were fair and it returned a verdict in favor of the British Medical Association. Stevens appealed the case and the appeal was heard on May 5, 6, and 7, 1915, with the result that Stevens lost. In his appeal, Stevens attempted to make much of the personal attack on him by the British Medical Association, but one of the judges before whom the appeal was taken, pointed out that "a comment may be fair, although it contains a personal attack." The rule as to fair comment in such cases, it was pointed out by the judge, had been clearly stated in the classic case of Dakhyl *vs.* Labouchere:

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[1] Ehrenberg: Die Infusionsthierchen als volkommene Organismen, Leipzig, 1833.

[2] Davaine: Compt. rend. Acad. d. sc., 1859, p. 58; also Traité des Entozoaires, Paris, 1860.

[3] Leidy, Jr., J.: Morphology of the Bacteria (Vibrio and Spirillum), and Early Research, Science, 1914, xl, 302.

[4] The Journal A. M. A., Sept. 3, 1910; April 5, 1913, and Sept. 12, 1914.

> "A personal attack may form part of a fair comment upon given facts truly stated, if it be warranted by those facts. . . ."

The judge further pointed out that the courts had made it plain that "the defendant may go very far in imputing motives." One other of the three judges before whom the appeal was heard, stated that whatever was in Stevens' medicine the evidence indicated that it was, to all intents and purposes, valueless. The judge concluded that it was most important "that the right to comment should be freely exercised in cases such as this, where large sums were made out of proprietary medicines." In view of the fact that the investigations by the British Medical Association have been upheld by the courts and the fraudulence and general worthlessness of Stevens' nostrum have become a matter of record the following item that appeared in an Albany (N. Y.) paper last October is of interest:

> "'To acquire the secret process for manufacturing a remedy for tuberculosis and other diseases, discovered by Charles H. Stevens of London,' the Umckaloabo Chemical Company of New York City was incorporated with the secretary of state yesterday. The capital of the concern is $250,000. The incorporators are Samuel S. Ryckman, Edward A. Sprong and Irene V. Russell, all of New York City."

EARLY HISTORY OF TYPHUS FEVER AND PEDICULOSIS

A recent paper by Dr. Fischer[1] of Vienna gives the early history of typhus in relation to the "lice plague," now so formidable in eastern Europe. The routine history of typhus, its description by Fracastorius (1533) and as "tabardillo" by Francesco Bravo (1570), the superb account of Pringle (1752), the attempts to differentiate it from typhoid by Willis (1643), Huxham (1737), Hildenbrand (1810) and others, the final and classical differentiation by W. W. Gerhard in America (1837) and Sir William Jenner in England (1849), and the subsequent developments up to the time of Plotz are well known. Dr. Fischer lists the many curious names given to the disease during the sixteenth, seventeenth and eighteenth centuries — febris petechialis, febris maligna, febris hungarica, lues hungarica, lues pannonica, morbus castrensis and others — and states that the first description of pediculosis as a concomitant of typhus was given in a series of observations on Hungarian camp diseases, published by Tobias Cober[2] of Görlitz in 1606, and reissued by the anatomist Meibom in 1685. Under the category "*languor pannonicus*," Cober describes a group of syndromes which he regards as prodromes of typhus, but which, Fischer thinks, have nothing to do with the disease. Lice, however, Cober signalizes as a constant plague of camps, not to be prevented by careful change of clothing, as he testifies from personal experience, and producing marked psychic unrest which, with such other etiologic factors as an unhealthy climate and atmosphere, impure drinking water and irregular mode of life, might easily bring about the languor pannonicus and even the "Hungarian disease" or typhus. In his chapter "De languore pannonica, ex variis animi pathematis," Cober sets forth that mental excitement furnishes the soil for the seed, and that war itself, with its experiences of camping on the hard ground, enduring extremes of heat and cold, torrents of rain and swarms of insects, is particularly liable to bring about such excitation of spirit. Among the insect pests of war time he specifies "culices" or mosquitoes and "pediculi." A translation of his quaint description of the latter nuisance follows:

> With these foregather the most terrible pediculi, hardly to be thought of without a sense of discomfort, which in themselves, through their constant promenading and sucking of the body, are enough to stir up one's bile. For it is impossible to avoid the bites of these miserable creatures, especially in the first years in the field, as they enjoy a sort of right of citizenship in all camps. The atmosphere is so lukewarm, mild and stuffy that when clothes which have been washed in swamp water are exposed to the sunlight, they are seen to swarm with these "vermibus Syllanis." One cannot hope therefore to get away from these constant attendants and companions, as they seem to arise from the very moisture of the body itself. At first I thought to rid myself of the pest by constant change of newly washed clothing, but even this seemed to bring them more and more into play, instead of destroying them. And this phthiriasis, which even the Egyptian magi of old could not produce, but which in these localities every one can create in his own person, can, as I bear witness, drive a man into fury. For as often as I was bitten by these miserable, abject animalcules, I gave full rein to my anger, fairly gnashing my teeth with rage, and cannot even now think of them without vexation. . . . One cannot ward off these armed six-footed Turks even with iron and steel. . . . And among many soldiers I have noted the frightful spectacle that this fearful plague of lice had gone far enough to cover the whole nape with ulcers, the flesh not only excoriated to the breadth of one or two fingers, but actually excavated, the men condemned to this miserable fate dying with groans and lamentations.

SKULL FRACTURES AND "DRUNKS"

The ordinary "drunk," found on the street in a comatose condition, is thrown into a patrol wagon, allowed to achieve sobriety on the hard planks of a "lockup" bed, and usually gets but little pity on his appearance before the police court judge. The victim of a not too evident skull fracture who is found semiconscious and refused admission to several hospitals because of a hasty diagnosis of alcoholism, often — to use a well-known bull — wakes up dead in his police cell in the morning. The small town or village where the "town drunkard" forms an object lesson to all the growing youngsters is, of course, little concerned with this problem. In large cities where from two to ten such cases may occur in a single day the problem is an important one. In Chicago recently, a woman was struck by a street car, and taken at once to a local hospital. The receiving physician, acting on the hospital's rule against alcoholics, refused her admission because there was evidence that she had been drinking. The patient was then carried several miles to a police cell and a day later, following the appearance of severe symptoms, to a police hospital, in which she died. The postmortem showed the presence of a skull fracture. The coroner's jury which considered the case recommended the installation of an observation ward in the hospital where physicians might carefully examine, with roentgenography and other methods, all cases of the character described. The need of such facilities is obvious from a simple relation of the facts in this single case. Such an observation ward should not be considered a refinement of science but an absolute necessity for the saving of lives.

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[1] Fischer, I.: Wien. klin. Wchnschr., 1915, xxviii, 321.

[2] Cober: Observationum castrensium et Ungaricum decas I-II, Frankfurt, 1606, reprinted at Helmstadt, 1685.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. Francis H. Mead, health officer of San Diego for eight years, has resigned, and has been succeeded by Dr. A. E. Banks, assistant health officer.——Dr. Hilo S. Musante, chairman of the public health board of the Civic League of Improvement Clubs of San Francisco, has resigned.

Hospital Notes.—A building is to be erected on Castelar Street, Los Angeles, by the Parent-Teacher Association for use as a free clinic for public school children.——The contract for the first three buildings of the new State Hospital at Norwalk has been awarded to a San Francisco firm for $115,000. The buildings to be erected are a two-story structure, 200 by 60 feet, for general hospital purposes; a one and one-half story building, 260 by 50 feet for both kitchen and dormitory purposes, and a one-story power house, 110 by 60 feet.——The McNutt Hospital, San Francisco, has been acquired by a syndicate of San Francisco physicians and has been renamed the Fairmont Hospital.

New Appointments on Faculty.—The following appointments to the faculty of the University of California have recently been announced: I. C. Hall, formerly connected with the Cutter Laboratories, assistant professor of bacteriology.——Dr. George W. Corner of Johns Hopkins University, assistant professor of anatomy.——Dr. Ruby Cunningham, instructor in hygiene and an infirmary physician in the infirmary of the University.——Dr. Abel W. Johnson, instructor in laryngology, otology and rhinology; Dr. Olga Louise Bridgman, Berkeley, instructor in pediatrics and mental abnormalities of childhood and Drs. Alfred E. Meyers, Howard E. Ruggles and Vivia Belle Appleton, instructors in pediatrics.

Research Associateship in Pathology Endowed.—In memory of Dr. Edith J. Claypole, Research Associate in the Department of Pathology of the University of California, who died on March 26, 1915, friends of the University have offered an annual gift of $1,200 to maintain the position of Research Associate in Pathology in the University of California, and have made definite provision for an endowment sufficient to yield this income in perpetuity. The immediate purpose of the position is to be a continuance of investigations in which much valuable work had already been accomplished by Dr. Claypole, in collaboration with Dr. Frederick P. Gay, Berkeley, Professor of Pathology in the University of California, in regard to improved methods for immunization against typhoid and methods for the treatment of that disease.

FLORIDA

Laboratory Building Finished.—The new laboratory of the State Board of Health at Pensacola, erected at a cost of $20,000, is now completed and ready for work.

Health Activities.—A vigorous campaign for a better milk ordinance is now being carried on in Pensacola.——The fight against the fly and mosquito is also in active progress.

Personal.—Dr. Fritz A. Brink, bacteriologist of the State Board of Health laboratory, Pensacola, is taking a vacation in South Dakota.——Dr. James R. Bean, Jacksonville, of the Jacksonville laboratory will take Dr. Brink's place until he returns.

Hospital Notes.—A building for tuberculosis patients has been completed at the Miami County farm. The building is 40 feet square and has been erected at a cost of $1,050.——Rapid progress is being made on the construction of the Pensacola Hospital, which when completed, will cost $400,000. It is expected that it will be ready for occupancy in September.——Articles of incorporation have been filed for the De Land Sanatorium by Frank R. Osborne and others. The institution is to have a capital stock of $50,000. Its object is to maintain a sanatorium in or near De Land and it has stated specifically that it is a corporation not for profit.——The State School for the Deaf and Blind is to have a hospital building to cost $10,000, which appropriation was made by the last legislature.——A plea for a new modern city hospital for Miami was made to the city council by Dr. John L. North, city physician. About $16,000 is at present available for this purpose, but $30,000 is required for the construction of the building.——Contracts have been let to a Tampa firm for the erection of the West Coast Hospital, Clearwater.

ILLINOIS

Hospital Incorporated.—The Evangelical Hospital and Deaconess Association of Southern Illinois which has charge of the Henrietta Hospital, East St. Louis, filed incorporation papers May 24.

Victory in House for University.—On June 2, the House of Representatives passed a bill appropriating $5,000,000 for the University of Illinois, a portion of which, about $100,000 will it is said, be utilized for the purchase of ground for the medical school and hospital of the university.

Highland Park Leper Returns to Italy.—Angelo Lunardi, the Highland Park leper whose name has been so prominently before the public for several months, is said to have been secretly deported to his home in Italy. He was taken to New York by his friends and put aboard a steamer for Italy which sailed June 3.

Chicago

Summer Hospital Will Soon Open.—The *Tribune* Summer Hospital for the Convalescent at Algonquin, with accommodations for from six to seven hundred sick women and their babies, will be opened for the season June 21.

Physicians Club Election.—At the annual meeting of the Physicians Club at Chicago, held June 3, the following directors were elected: Drs. Henry T. Byford, Joseph Zeisler, and Charles P. Caldwell; and Dr. Arthur M. Corwin was elected secretary.

Northwestern Alumni Election.—At the annual meeting of the Alumni Association of Northwestern University Medical School, held June 7, the following officers were elected: president, Dr. William R. Cubbins, '00; secretary, Dr. Arthur B. Eustace, '07 (reelected); treasurer, Dr. Leo G. Dwan, '07 (reelected); and necrologist and Alumni editor, Dr. Samuel C. Stanton, '92. At the alumni banquet that followed the meeting, Dr. Archibald Church presided as toastmaster and the speaker of the evening was Prof. E. R. Keedy who delivered an address on "Medico-Legal Criminal Borderland."

To Fight Rabies.—At a meeting called bv Alderman Willis O. Nance, chairman of the Council Committee on Health, June 4, plans were discussed for the limitation of rabies which has increased so materially in the city of late. At the conference were present the health commissioner, chief of police, superintendent of the dog pound, coroner, a representative of the Chicago Kennel Club, Aldermen Hugo Krause and Oliver B. Watson, and Drs. James A. Clark, Frederick A. Fisher, James E. Stubbs and William A. Evans. It was suggested that an all the year muzzling law would prove effective, but no definite action was taken.

Chicago Unit for War Service Ready.—The Chicago unit leaves by the New York Central line from La Salle Street Station, Sunday, June 13, at 11:30 p. m. The unit will sail on the steamship *New Amsterdam* of the Holland American Line, Tuesday, June 15, at noon, from Hoboken, N. J., and land at Falmouth, England. The purpose of the organization is to take charge of a base hospital of 1,040 beds in England or field work on the continent. The personnel of the unit is as follows: Drs. James M. Neff, Operating Surgeon, Spokane, Wash.; Geo. G. Davis, Operating Surgeon, Chicago; W. E. Leighton, Operating Surgeon, St. Louis; Philip S. Chancellor, Medical Consultant, Chicago; Geo. P. Gill, Associate Surgeon, Rockford, Ill.; W. R. Rainey, Associate Surgeon, Salem, Ill.; Waldo Richardson, Associate Surgeon, Seattle; Ralph L. Thompson, Pathologist, St. Louis; Edward M. Auer, Neurologist, Skillman, N. J.; Geo. E. Meyer, Oral Surgeon, Chicago; Chas. Maghy, Ophthalmologist, Chicago; W. Earl Ball, Roentgenologist, Chicago; Scurry Terrell, Ear, Nose and Throat Surgeon, Dallas, Tex.; J. F. Archibald, Associate Pathologist, St. Louis; John G. O'Malley, Chicago, Surgeon and Secretary; D. F. Hayes, Chicago; R. B. Haven, Chicago; R. B. Acker, Chicago; P. M. Dale, Chicago; S. Walker, Chicago; E. L. Cavanee, Chicago; E. Lee, Seattle; R. D. Long, Oklahoma City; C. D. McLean, Oklahoma City; C. Smith, Kalispell, Mont.; W. G. Uppendahl, Peoria, Ill.; J. S. Fox, Silverton, Colo.; J. J. Hilton, Chicago; C. R. Stanley, Indianapolis; J. R. Taylor, Madison, Wis.; A. H. Hixson, Columbus, Ohio; Fred Moeller, Chicago; Fred S. Jacobs, Chicago.

Dr. James Neff and Dr. Chancellor sailed June 2, on the steamship *Rotterdam* to make preliminary arrangements.

Seventy nurses, most of them graduates of local training schools, will also serve with this unit.

INDIANA

Tuberculosis Survey to Be Made.—Surg. James C. Perry, U. S. P. H. S., arrived in Richmond, May 27, to conduct a tuberculosis survey in the city.

Health Officers Oppose Alcohol.—At the annual conference of the health officers of the state, held at Indianapolis, May 12, about 200 health officers were in attendance, and Dr. George W. Bence, Greencastle, was chairman. A resolution was unanimously adopted declaring that physicians and health officers should join in the campaign against alcohol.

Personal.—Dr. L. Oilar, Indianapolis, has been commissioned as first lieutenant, M. C., Ind. N. G.——Dr. Gustavus B. Jackson has been elected president of the Indianapolis City Board of Health, succeeding Dr. T. B. Victor Keene, membership expired.——Dr. Eugene B. Mumford has been appointed a member of the Indianapolis Board of Health.——Dr. Boston H. B. Grayson, Huntington, who recently underwent an operation for appendicitis in the Huntington County Hospital, has returned home convalescent.——Dr. Norman F. Peacock, Darlington, is reported to be suffering from septicemia.——Dr. Clint C. Sourwine, Brazil, who has been seriously ill with septicemia, is reported to be improving.

Prosecution of Chiropractors.—The State Board of Medical Examiners has been taking up the question of the chiropractors. At Crawfordsville, Montgomery County, William A. Summerville, after being convicted once of practicing medicine without a license, attempted it again, but on being again indicted, left before he could be arrested. William N. Tyson, a masseur, at first employed under the direction of the physicians of Crawfordsville, it is said began soliciting and treating patients on his own account, using chiropractic methods. He was indicted, tried, and on May 27 fined $25 and costs in the circuit court of Montgomery County for practicing medicine without a license. He paid the fine and agreed not to repeat the offense. Mrs. Ellen Cunningham and Paul F. Myers, chiropractors, the latter a recent "graduate" of the Palmer School at Davenport, Iowa, were also charged at Crawfordsville with practicing medicine without being authorized to do so. Mrs. Cunningham is defended by Attorneys Morris & Hartwell of La Crosse, Wis., a firm frequently employed to defend chiropractors in various states, it is said, in the interest of certain chiropractic schools. A motion to quash the charges in the case of Mrs. Cunningham reveals the general grounds on which the chiropractors seek to defeat the provisions of the medical practice acts where chiropractors are haled into court for illegally practicing medicine. It is declared that the court has no jurisdiction; that the Indiana practice act is not in accord with the national Constitution; that it impairs the obligation of contracts and violates the constitutional provision that all shall have equal rights in the several states; that a speedy trial is not provided for; that the law is arbitrary and attempts to give exclusive rights to some, and to show how knowledge of medicine or surgery shall be obtained, is class legislation, has been enacted for private gain, attempts to settle questions of science, declares that practice of medicine and surgery which is not such practice, and imposes unnecessary restrictions and is not a proper exercise of the police powers of the state. It is also declared that the law violates the constitution of Indiana, and that the charge against Mrs. Cunningham embraces two offenses while only one is specified in the title. The case was to have come to trial the last week in May, but a continuance was asked by the defendant. The case of Myers has not yet been reached.

IOWA

Eastern Surgeons Visit Iowa.—Dr. George W. Crile, Cleveland, delivered an address before a joint meeting of the Scott County and the Rock Island County (Ill.) medical societies in Davenport, June 8.——Dr. George L. de Schweinitz, Philadelphia, was the guest of honor at a luncheon in Iowa City, May 13, which was given by eye, ear, nose and throat specialists of the city.

Tuberculosis Sanatoriums.—At a meeting of the Pottawattamie County Medical Society held in Council Bluffs recently, formal endorsement was given to the proposed sanatorium for the treatment of tuberculosis and the proposition of a tent colony near McClelland was favored.——The Woodward County Board of Supervisors has contracted for the erection of a modern tuberculosis hospital in Sawyers Bluff, Sioux City, at a cost of from $12,000 to $15,000.

Kepford Resigns.—Aretas E. Kepford, for nine years state lecturer on tuberculosis, has resigned to take effect July 1, and will enter evangelistic work. During Mr. Kepford's nine years of service he has seen a decrease in the mortality from tuberculosis in the state of almost 40 per cent., has traveled several thousand miles and has delivered more than 2,000 lectures to more than half a million people, and by his efforts has greatly assisted in the establishment of the State Sanatorium, Oakdale.

Personal.—Dr. William H. Newlon, Fort Madison, has started for the Pacific Coast.——Dr. Otto J. Yelt, Colfax, sailed from New York, June 1, for service with the French army.——Dr. Albert Anderson, Estherville, was operated on, May 13, for appendicitis and cholelithiasis, and is reported to be doing well.——Dr. Floyd S. Clarke, Lemars, has moved to New York City.——It is announced that Dr. Max W. Emmert will leave Atlantic City, N. J., some time this month and will locate in Des Moines.

State Society Meeting.—The sixty-fourth annual meeting of the Iowa State Medical Society was held in Waterloo, May 12 to 14, under the presidency of Dr. Henry C. Eschbach, Albia, and the following officers were elected: president-elect, Dr. John F Harrick, Ottumwa; president, Dr. William B. Small, Waterloo; vice presidents, Drs. John E. Luckey, Vinton, and Harvey B. Gratiot, Dubuque; secretary, Dr. James W. Osborn, Des Moines (reelected); treasurer, Dr. Thomas F. Duhigg, Des Moines; councilors, first district, Dr. John R. Walker, Fort Madison, and eleventh district, Dr. Giles C. Moorehead, Idagrove; delegate to the American Medical Association, Dr. John C. Rockafellow, Des Moines; and alternate, Dr. Frank M. Tombaugh, Burlington. Davenport was selected as the place of meeting for 1916.

KENTUCKY

Hospital News.—The Clark County Fiscal Court on May 12 agreed to give $5,000 toward the proposed hospital at Winchester provided that a subscription of $25,000 is secured.——The city council of Henderson has passed an ordinance appropriating $25,000 for the establishment of a hospital in that city.

Personal.—Dr. J. Morrison Ray has been appointed a member of the board of trustees of the Louisville Public Library, succeeding Dr. Chester A. Mayer, deceased.——Dr. R. Julian Estill, Lexington, who has been seriously ill at the Good Samaritan Hospital in that city for six weeks, is reported to be convalescent.——Dr. U. V. Williams, Frankfort, has been reappointed a member of the state tuberculosis commission.——Dr. Leon L. Solomon has been elected dean; Dr. Frank W. Fleischaker, vice dean, and Dr. Siegel C. Frankel, secretary, of the staff of the Jewish Hospital, Louisville.——Dr. Frank Fithian, Paris, is reported to be seriously ill with rheumatism in Martinsville, Ind.——Dr. W. Hamilton Lond, Louisville, has been elected president of the Interstate Association of Anesthetists.——Dr. Thomas L. Harris has succeeded Dr. James Cruce as chief resident physician at the Louisville City Hospital.——Dr. Simeon K. Fisher, Milton, is reported to be seriously ill with heart disease.

MARYLAND

Public Meeting on Cancer.—As a part of the nation-wide movement against cancer, the Baltimore City Medical Society, acting jointly with the committee on public instruction of the Medical and Chirurgical Faculty of Maryland, held an interesting meeting in Osler Hall on June 4. The speakers were Dr. Jonathan M. Wainright, Philadelphia, who is chairman of the cancer committee of the Pennsylvania State Medical Society; Dr. Julius Friedenwald, Baltimore, who spoke on "What Everyone Should Know About Cancer of the Stomach," and Dr. Fred V. Beitler, Halethorp, of the State Board of Health. Dr. William H. Welch, Baltimore, presided at the meeting.

Personal.—Dr. Burns S. Chaffee, Baltimore, will become resident physician of the Union Protestant Infirmary, succeeding Dr. Edwin G. Davis, Baltimore, when changes in the hospital staff take place this summer. Dr. Davis will remain as a member of the staff. Dr. Chaffee has been connected with the institution for several years.——Interns W. S. Bean, Jr., and W. Y. Hollingsworth, interns in the United States Marine Hospital, Baltimore, have resigned and have been succeeded by Drs. M. V. Ziegler and Harry Schmuck.——Dr. William Lee Smith, Riderwood, is under treatment in Johns Hopkins Hospital, Baltimore.——Prof. Thomas L. Patterson of the University of Maryland Medical School has accepted the position of assistant professor of physiology in the medical faculty of Queen's University, Kingston, Ont.——Dr. A. Clarence Smink, Baltimore, sustained injuries of the head in a collision between the automobile in which he was riding and a street car, May 29.——Dr. Thomas S. Cullen, Baltimore, who was operated on for appendicitis and cholecystitis, May 29, is reported to be making satisfactory progress.——Dr. Alfred Whitehead, Baltimore, is under treatment in Johns Hopkins Hospital.

Medical Schools Merge.—A plan to merge the University of Maryland Medical School and the College of Physicians and Surgeons, which has been under way for months, has been consummated. The merger applies only to the work of the first two years. The third and fourth year classes will continue to be taught separately by the two respective faculties. The combined school will receive from the regents of the Maryland State University $15,000 for each of the years 1915 and 1916. An act of the legislature, which created the Maryland State University, gave that institution the sum named to be used for medical education in the state. Neither of the schools now receives state aid. The University of Maryland regents will be increased to include eight men as representatives of the College of Physicians and Surgeons; and the medical faculty of the university will be increased by ten from the physicians and surgeons, making twenty-one in all. There will be no resignations. The University of Maryland Medical School was established in 1807 and the College of Physicians and Surgeons in 1872. Dr. Arthur M. Shipley is dean of the former and Dr. William F. Lockwood is dean of the latter institution. The University of Maryland Medical School occupies the oldest medical building in the United States, now being actively used in medical teaching.

MICHIGAN

Holmes Guest of Honor.—Dr. Arthur D. Holmes, Detroit, past president of the Wayne County Medical Society, to whose activities were largely due the success of the enterprise of securing permanent quarters for the society, was the guest of honor at a testimonial dinner given by members of the organization, May 21, at which Dr. Wadsworth Warren, Detroit, officiated as toastmaster.

Clinic Week at Medical College.—The annual clinic week in Detroit College of Medicine and Surgery began May 26. The program of this week has already appeared in The Journal, and it remains only to say that the week was a notable success.——At the annual meeting of the Alumni Association held on the steamer *Tashmoo*, June 2, Dr. Alexander W. Blain, Detroit, was elected president; Dr. Frederick W. Robbins, Detroit, honorary president, and Dr. Charles W. Husband was reelected secretary-treasurer.

Personal.—Dr. Arthur O. Ullrey, Niles, was operated on at the Epworth Hospital, May 9, and is said to be doing well.——Dr. William J. Rynearson, Parshallville, was seriously injured, May 31, when a runaway horse collided with the automobile in which Dr. Rynearson was riding.——Dr. A. A. Spoor, Big Rapids, has been appointed assistant state bacteriologist, with headquarters at the new laboratory which the State Board of Health has decided to open at Houghton.——Dr. Louis Barth, Grand Rapids, has started on a trip to the Pacific Coast.——Dr. Felix J. Pzbylowski has won his suit against the poor commission for $1,033.33, and the judge has ordered that Dr. Pzbylowski be restored to office as city physician of Detroit.——Dr. John C. Brown, Battle Creek, has been appointed a member of the State Pardon Board, vice Dr. Karl B. Brucker, Lansing.——Dr. and Mrs. John H. Kellogg, Battle Creek, returned May 20, from a tour to the Pacific Coast.——Dr. Arthur D. Bangham, Albion, underwent an operation in Battle Creek, May 20, for the enucleation of the right eye.——Dr. Ralph G. Cook has resigned as chief of the Kalamazoo Antituberculosis Society, and is succeeded by Dr. R. Genung Leland, East Le Roy.——Dr. Ralph C. Apted, city physician of Grand Rapids, who was operated on for disease of the liver at Butterworth Hospital, May 8, is reported to be improving. Dr. Allison H. Edwards is in temporary charge of Dr. Apted's work.——Dr. Thomas J. Henry, city physician of Detroit, has recovered from the effects of an accidental dose of carbolic acid.——Dr. John T. Cooper has been appointed local surgeon for the Pere Marquette Railroad Company at Muskegon, to succeed Dr. Albertus B. Poppen.

MINNESOTA

Summer Course at University.—A course for practitioners will be given by the University of Minnesota medical department, during the entire month of July. The full summer session of the medical school will begin June 14 and end July 23. The clinics in the City Hospital, Minneapolis, will be open to graduate students and practicing physicians.

Health Survey Planned.—Dr. H. M. Bracken, secretary of the State Board of Health, announces that the board will designate one county in the state in which a thorough health survey will be conducted. Beginning on July 1, a detachment of officials from the United States Public Health Service will enter the county designated, examine every householder and make a detailed report of the sanitary condition of the premises and the occupants.

Tribute to Pioneer Surgeon.—A life-sized bronze statue of the late Dr. W. W. Mayo, presented by the people of Rochester and Olmsted County, was unveiled in Mayo Park, Rochester, May 29. Rt. Rev. Thomas O'Gorman, Sioux Falls, S. D., and former Chief Justice Charles M. Stark, two of Dr. Mayo's most intimate friends, delivered addresses during the ceremonies. On the base of the statue are carved the words:

William Worrel Mayo,
Born May 31, 1819, Died March 6, 1911.
Pioneer Physician Citizen.
A Man of Hope and Forwardlooking Mind.

Time-Limit Quarantine for Diphtheria.—The director of the division of preventive diseases of the State Board of Health has issued a circular to health officers and physicians which states that owing to the closing of the State Board of Health laboratories, May 15, a time-limit quarantine for diphtheria supersedes control by the culture method until August 1, when laboratories will resume work. Quarantine must be continued for at least three weeks after the disappearance of all clinical symptoms of diphtheria.——To facilitate the distribution of free diphtheria antitoxin, throughout the state, the secretary of the State Board of Health has designated 122 stations at which the indigent may obtain free antitoxin. The attending physician in each case must determine whether the patient is entitled to the benefit of this provision.

Personal.—Dr. Charles H. Mayo has been appointed a member of the Board of Education of Rochester.——Dr. Christian Johnson, Wilmar, who underwent operation recently in St. Paul, is making satisfactory progress toward recovery.——Dr. Thomas M. Joyce, Janesville, is reported to be ill in St. Joseph's Hospital, Mankato.——Mr. L. P. Wolf, a consulting engineer of St. Paul, has been appointed a member and consulting engineer of the State Board of Health, succeeding Dr. Charles Lyman Greene, St. Paul, resigned.——Dr. Michael Sullivan, Adrian, was operated on for hernia at Luverne Hospital, recently, and is said to be doing well.——Dr. Rudolph A. Beise has been elected mayor of Brainerd.——At the fifty-seventh birthday exercises of the state of Minnesota, held in the Old Capitol Building, St. Paul, May 11, Dr. John M. Armstrong gave a review of the lives of pioneer physicians of Minnesota.

Public Health Association Meeting.—At the annual meeting of the Minnesota Public Health Association held May 18, the following officers were elected: Governor W. S. Hammond and President George E. Vincent, honorary vice presidents; James T. Jerould, Minneapolis, vice president; Dr. W. L. Beebe, St. Cloud, secretary; Dr. Paul B. Cook, St. Paul, treasurer; Drs. Paul B. Cook, St. Paul; Halvor Holte, Crookston; and Messrs. W. A. Laidlaw, St. Paul; H. L. Merrill, Hutchinson; C. C. Stillman, St. Paul, and Mrs. A. L. Robinson, Warren, directors. The executive secretary, Dr. H. W. Hill, was granted leave of absence for seven months and at the adjourning annual meeting, May 24, Dr. Ignatius J. Murphy, Duluth, was unanimously elected secretary to act in Dr. Hill's absence, and has already entered on his duties. The association proposes a stirring public health campaign to arouse interest and secure for the next legislature advances in public health work which were refused by the last legislature. County public health associations are to be formed and an active campaign for membership is to be inaugurated.

NEW YORK

Long Island Hospital for the Insane.—Governor Whitman has signed the legislative appropriation permitting the State Hospital Commission to enter into contracts for additional quarters for patients at the Long Island State Hospital to the amount of $400,000, of which $200,000 is available at once.

Buffalo Alumni Assemble.—The fortieth annual meeting of the Alumni Association of the Medical Department of the University of Buffalo was held at that institution June 1 to 4, and the following officers were elected: president, Dr. Lesser Kaufman, '04, Buffalo; secretary, Dr. Julius Richter, '04, Buffalo, (reelected); treasurer, Dr. Frank E. Brundage, '09, Buffalo; and trustee, the retiring president, Dr. George F. Cott, '84, Buffalo. The annual alumni dinner was held on the evening of June 3, Dr. Thomas H. McKee, '98, officiating as toastmaster.

New York City

Raising Requirements for Health Inspectors.—Dr. Sigismund S. Goldwater, commissioner of health, has announced that in the future all applicants for the position of medical inspector, to which physicians only are eligible, must show at least one year of hospital experience as an intern in addition to the medical course.

Crocker Research Fund.—The trustees of Columbia University have appointed the following board of managers of the George Crocker Cancer Research Fund: Drs. T. Matlack Cheesman, and Walter Mendelson, President N. M. Butler, Dean Samuel W. Lambert, and Profs. Warfield T. Longcope, William G. MacCallum, and Francis Carter Wood.

Geriatrists Organize.—The New York Geriatric Society was organized June 2, its object being the scientific study of senile conditions, the cause of aging, the diseases of advanced life and the home and institutional care of the aged. The following officers were elected: president, Dr. Robert Abrahams; vice-president, Dr. Edward P. Swift and secretary, Dr. Ignatz L. Nascher.

Supreme Court Sustains Muzzling Law.—The Appellate Division of the Supreme Court, on March 29, 1915, unanimously sustained the validity of that section of the Sanitary Code which prohibits any unmuzzled dog on any highway or in any public park or place in the city of New York. This finally disposes of the "Knoblauch" case and upholds Justice Lehman of the Supreme Court in his opinion that the ordinance is a valid and reasonable exercise of the police power of the Board of Health.

Systematic Inspection of Farm-Killed Meat.—After a number of conferences between the department of health and the board of aldermen it was decided to inaugurate a system of inspection of farm-killed meat, to be performed by veterinarians qualified in postmortem examinations, the cost to be met by the firms selling the goods. An ordinance on these lines was drafted and sent to the board of aldermen, and was passed by that body on May 11.

Columbia's Plan Announced.—More definite plans for the new medical plant in connection with Columbia University were announced June 1. The total cost of the project will be $16,700,000 of which the share of the Presbyterian Hospital will be $9,200,000. The plans include a hospital designed to contain 650 beds and seventy-five private rooms. Provision will be made for the permanent location of the George Crocker Cancer Research Foundation, and the Vanderbilt Clinic will be rebuilt as a part of the new hospital. The plans also include a students' dormitory which will accommodate 400 students. At present the College of Physicians and Surgeons has a deficiency of about $150,000 a year. The urgently needed department of sanitation will require an additional $40,000 per year and it is pointed out that the usefulness of the medical school along many lines is hampered by lack of funds. The university must raise a total fund of $7,500,000 in order to carry out its plans.

Personal.—Dr. Matthias Nicoll, Jr., has been appointed assistant director of laboratories of the Department of Health at a salary of $3,000 per year.——Dr. Abraham L. Wolbarst was the guest of honor at a dinner given May 12, by physicians who had attended his Thursday night genito-urinary clinics at the West Side German Dispensary and Hospital during the winter. Dr. Simon C. Grudberg acted as toastmaster.——Dr. Alfred Stillman, II, sailed for Europe June 5, for duty as surgeon in Mrs. Henry Payne Whitney's Hospital in France.——Dr. William V. Pascual, Brooklyn, was operated on for appendicitis May 25, and is said to be doing well.——Dr. Lucius F. Herz was struck by an automobile in New Haven May 22, and sustained a fracture of the left leg above the knee in addition to numerous cuts and bruises.——Dr. Simon Flexner, director of medical research of the Rockefeller Institute, was given the honorary degree of LL.D. by the University of Maryland, Baltimore, May 21.

PENNSYLVANIA

Gift to Hospital.—The Benjamin A. Haywood memorial dispensary and pathological laboratories, presented to the Sibly Memorial Hospital, Washington, by Mrs. Elizabeth E. Haywood of Sheran as a memorial to her husband, were formally dedicated, May 18. The laboratories are thoroughly equipped and the dispensary will be opened for free patients daily.

Philadelphia

Woman's Medical College Commencement.—The fortieth annual commencement exercises of the Woman's Medical College of Pennsylvania, Philadelphia, were held at the college, June 2. Dr. Richard C. Cabot, professor of medicine in Harvard Medical School, delivered the doctorate address.

College Commencements.—The thirty-fifth annual commencement of the Medico-Chirurgical College of Philadelphia was held at the Academy of Music, June 4. Mr. Clinton Rodgers Woodruff delivered the address to the graduates.——The ninetieth annual commencement of Jefferson Medical College was held June 5 at the Academy of Music. There were 145 graduates. The annual address to the students was delivered by Dr. Victor C. Vaughan, Ann Arbor, Mich. His subject was "The Doctor's Ideals." The degree of LL.D. was conferred on Dr. Vaughan by the president of the board of trustees.

Alumnae Election.—The election of officers of the Alumnae Association of the Woman's Medical College of Pennsylvania, June 3, resulted as follows: president, Dr. Elizabeth L. Peck; director, Dr. Catherine Macfarlane; recording secretary, Dr. Jacobina S. Reddie; corresponding secretary, Dr. Mary Buchanan; and treasurer, Dr. Ellen C. Potter. The alumnae decided to appoint a committee of five to consider the enlistment of thirty or more volunteer women physicians to be sent to Europe to aid in the care of war babies and their mothers. Dr. Harriette L. Hartley was appointed chairman of this committee and instructed to correspond with the representatives of war powers concerning the location of a hospital in the war zone for women and children.

Jefferson Alumni Meeting.—The annual banquet of the Alumni Association of Jefferson Medical College was held June 4. Dr. Francis T. Stewart acted as toastmaster and speeches were made by Mr. Potter, president of the board of trustees; Dr. William W. Keen, professor emeritus, and Prof. J. Parson Scheffer. The announcement was made of the promise of a gift of $100,000 by one of the diners for the purpose of swelling the endowment fund, the only stipulation being the raising of an equal amount by the alumni of the institution. The name of the donor was withheld. At this time Dr. William W. Keen, emeritus professor of surgery in Jefferson Medical College, was presented with two beautiful silver platters as a token of esteem and love by the association. Dr. B. Franklin Royer, Harrisburg, was elected president for the ensuing year.

WEST VIRGINIA

New State Department of Health.—An act passed by the last legislature provided for the new organization of the Health Department and that a new Council on Health should take the place of the old board of health. The following have been appointed members of the council: Dr. Samuel L. Jepson, Wheeling, commissioner of health; and Drs. William W. Golden, Elkins, Joseph L. Pyle, Chester; Will J. Davidson, Parkersburg, and Joseph E. Robins, Charleston, who were members of the old board; and Dr. J. S. Farmsworth, Frenchton, and Wilkin B. Stephens, Kimball, new members. The Council on Health will continue to perform the function of the old board as an examining board and it is announced that the next examination will be held in Charleston, July 7.

CANADA

Personal.—Dr. Robert M. Simpson, Winnipeg, chairman of the Board of Health of Manitoba, is to go to the front and take charge of a large hospital.

Hospital News.—Temporary accommodation has been provided for 100 children of the Children's Hospital, Toronto, on Toronto Island, the summer home at that point having been destroyed by fire in April. Several portable sheet steel buildings, including a dispensary have been provided.——The Canadian Militia Department have decided to accept the offer of Laval University, Montreal, for a hospital of 1,000 beds for service in England or France.——On the first day the lists were opened for the Ontario Government Hospital to be established in England, there were 100 applications from medical men. Fifty physicians and surgeons are required.

GENERAL

State-District Medical Society Meets.—The annual meeting of the Medical Society of Northern Virginia and the District of Columbia was held, May 19, in Alexandria, Va., and the following officers were elected: president, Dr. Samuel B. Moore, Alexandria, Va.; vice presidents, Drs. John B. Nichols, Washington; and George R. Cottingham, Remington, Va.; recording secretary, Dr. Thomas A. Groover, Washington; corresponding secretary, Dr. Joseph D. Rogers, Washington; and treasurer, Dr. William I. Robey, Herndon, Va.

Bequests and Donations.—The following bequests and donations have recently been announced:

Federation of Jewish Institutions, Philadelphia, $1,000, by the will of Dr. Henry Van Beil.

Up to May 28, the campaign fund for the Sisters of Mercy fund, West Philadelphia, had reached $122,048.22.

Henry A. Rexler Orphans' Home, Allentown, Pa., $60,000, by the will of Henry A. Rexler.

Jewish Hospital, Philadelphia, $2,000, for the endowment of the Leffman and Rosalie L. Hope bed, by the will of Rosalie L. Hope.

St. Joseph's Hospital, Philadelphia, $2,500, by the will of Annie Campbell.

Medical Jurisprudence Society Meets.—The third annual meeting of the American Association of Medical Jurisprudence was held at Hotel Trownvill, Long Beach, L. I., under the presidency of Mr. Charles A. Boston, New York, and the following officers were elected: president, Dr. D. Percy Hickling, Washington, D. C.; vice presidents, Mr. Oscar W. Earhorn, New York City, and Dr. Philip Coombs Knapp, Boston; secretary, Mr. Charles P. Blaney, New York City (reelected); treasurer, John Castree West, New York City; and councilors, Drs. Frank H. Daniels, Frank W. Robertson and A. Ernest Gallant, New York City; Donald D. MacTaggart, Montreal, and Reynold Webb Wilcox, New York City; and Messrs. John S. Durand, Alfred E. Ommen, Theodore Sutro, Harold Hirsch and Harry V. Osborne.

Cancer in Vermont.—The New England states have been much aroused recently on account of the higher death rate from malignant diseases, which has been reported by census statistics to prevail. The general mortality rate from cancer in the United States is 78.9 per 100,000 population. In the New England states the lowest rate was 85.1 per 100,000. Rhode Island's rate was 93.3; that of Massachusetts, 101.4; that of New Hampshire, 104.4; that of Maine, 107.5, while Vermont heads the list with 111.7 deaths per 100,000 of population. Vermont was so aroused by the publication of these statistics that the State Medical Society arranged for meetings and lectures in Rutland, Burlington, Montpelier and St. Johnsbury to start a campaign of education. These meetings were held June 8 to 11. The afternoon sessions were for the medical profession, while in the evenings the general public was invited.

FOREIGN

Deaths in the Profession Abroad.—Haltenhoff, formerly professor of ophthalmology at Bern, aged 73.——Frankenberger, professor of otology at the Bohemian University of Prague.

Our Foreign Exchanges.—The August, 1914, number of the *Journal de Chirurgie* has reached us, published in April, 1915, and the four other numbers for 1914 are promised before the end of 1915. This issue contains long summaries, some illustrated, of numerous articles in The Journal and other American publications. As is evident from our Foreign Current Literature Department, the German exchanges, all the weeklies and the high grade *Archivs* and *Zeitschrifts*, have never suspended publication, and except that their contents are devoted mostly to military surgery and hygiene, there is nothing in their aspect or make-up to suggest that their country is at war.——The *Zeitschrift für Geburtshülfe und Gynäkologie* has just been received, the first since early in the spring. This *Zeitschrift* is one of the journals issued irregularly, only as material accumulates. This number bears a mourning border on account of the death of its editor in chief, Prof. R. Olshausen a few months ago.

Chair of Tropical Diseases in Italy.—Naples was selected as the best location for the newly founded university professorship of tropical diseases, and A. Castellani has been placed in charge. Since 1903 he has been chief of the clinic for tropical diseases on the island of Ceylon, a British institution, after having worked long with Sir Patrick Manson at London. Castellani was sent to Uganda in 1901 to 1903 by the British authorities and his work there was crowned by the discovery of the causal agent of sleeping sickness. The *Riforma Medica* of Naples states that he has described about thirty new forms of tropical diseases, including endemic funiculitis and forty new species of pathogenic bacteria, such as that of Ceylon paracholera, besides several protozoa. He has also contributed much to improve bacteriologic technic and methods of vaccination.

WAR NOTES

Typhus Checked.—Reports were received by the state department in Washington, June 3, that the campaign against typhus in Serbia is going steadily forward and that the disease is being rapidly suppressed.

Training Official Disinfectors.—The state authorities in Germany have ordered all communities to make arrangements for a trained corps of disinfectors in readiness for an invasion of typhus. The training must include instruction in vermin extermination. The three-day courses are to be taken in some state disinfection training school.

Red Cross Notes.—The American Red Cross reports under date of June 5, that there were 10,000 wounded soldiers in Constantinople as long ago as May 8, and that more were arriving daily. The two Red Cross hospitals in Constantinople are absolutely filled with wounded soldiers and many of the colleges and Greek schools have been taken over by the authorities and converted into hospitals.——The Beirut, Syria, chapter of the American Red Cross has equipped a field hospital which is actively at work.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending June 5, 1915, lists the following contributions:

Dr. Arthur G. Larkin, New York, N. Y.	$ 10.00
Dr. John A. Hawkins, Pittsburgh, Pa.	10.00

Medical Society of the Co. of Greene, Catskill, N. Y.		15.00
Wilson County Medical Society, Fredonia, Kans.		15.00
Dr. Robert C. Davis, Johnstown, Pa.		5.00
Dr. Emery Marvel, Atlantic City, N. J.		25.00
Dr. G. J. Hagens Chicago, Ill.		15.00
Medical Society of the County of Westchester, White Plains, N. Y. (second contribution)		2.50
Rockland County Medical Society, Nyack, N. Y.		28.00
San Luis Valley Medical Society, Alamosa, Colo.		25.00
Receipts for the week ending June 5		$ 150.50
Previously reported receipts		7,008.50
Total receipts		$7,159.00
Previously reported disbursements:		
1,625 standard boxes of food at $2.20	$3,575.00	
1,274 standard boxes of food at 2.30	2,930.00	
213 standard boxes of food at 2.28	485.64	
Total disbursements		6,990.84
Balance		$ 168.16

F. F. Simpson, M.D., Treasurer,
5 Jenkins Arcade Bldg. Pittsburgh, Pa.

FROM SIR WILLIAM OSLER

Oxford, May 26, 1915.

Medical Notes on England at War

FUNCTIONAL NERVOUS DISORDERS

Types rarely seen in males in this country or in the United States are very common, and an explanation is to be found in the extraordinary stress and strain of the trench fighting.

Shell-Shock Paraplegia.—Without actual injury, the close proximity of the explosion causes loss of consciousness or a dazed condition which lasts for some hours or longer, with a paraplegia persisting for days or even for weeks and gradually disappearing. In the cases which I have seen, the reflexes have been present or have been increased. In one there was hypertonus of the muscles; sometimes there have been hyperesthesia and transient difficulty with the bladder and bowels. In severe cases following partial burial by the explosion, even without bruising, there may be hemorrhage and a much more serious type of paraplegia, with the legs completely flaccid and abolition of the reflexes.

Psychic "Knock-Out."—This condition, due to shell shock, is a remarkable one in which the victim remains in a state of stupor, with loss of memory and complete speechlessness or stammering, recovery following in a few days; but a condition of nervous irritability may persist for weeks.

Involvement of the Special Senses.—This is common. One man near whom a shell had exploded, but who was not struck by any fragments, had headache and a blinking tic, a constant quivering blepharospasm, so that he could not open his eyes; the conjunctivae and media were clear and there were no retinal changes. He kept the head depressed, and the photophobia was extreme, but he gradually recovered. A very puzzling case which interested us greatly at Clevedon was a man with monocular amblyopia, without visible changes in the fundus or in the reflexes; there was in the left eye complete defect of vision, except a very small area in the temporal field. Mr. Lawford, ophthalmic surgeon to the St. Thomas Hospital, who made a careful examination, concluded it was a functional defect. I see that Dr. Turner mentions a somewhat similar monocular case with ptosis.

Functional Dysbasia.—All sorts of anomalous gaits are encountered. One of the most remarkable was a tight rope walker's type in a functional dysbasia following shell shock. The subject, an intelligent young officer, wrote down the following statement about the accident:

> "The Germans had been shelling our dummy trenches, which were about 20 yards to the rear of the trench in which I was. The oncoming shells give just enough warning to allow one to lean against the front wall of the trench—the position of least danger from shell fire. I heard my particular shell coming, and from force of habit leaned toward the front wall and looked toward the rear dummy trench to see the shell burst as the others had done. Suddenly there was a tremendous red bang, and the world seemed to stop stock-still for a moment. Then things started with a rush. I realized that I was clinging, sprawling, to the wall, and that men were hurrying and scrambling out of the trench. I followed them out. This was about 11:30 a. m. I was in a queer 'semidetached' sort of condition. I just clung desperately to the idea, 'I must finish my turn of duty.' (I was on duty at the time.) This idea obsessed my mind to the exclusion of all others. I did in fact finish my turn, and then returned to my dug-out and slept or dozed until I was roused by my company commander to take a turn of duty at 1 o'clock next morning until 3, which I did. I then returned to my dug-out and slept and dozed until we came out of the trenches. I walked, carrying all my equipment and pack, for about 100 yards, and then had to be supported to headquarters, where a stretcher conveyed me to the advanced dressing station. I had a headache at the base of my skull from ear to ear, and the ground behaved like the deck of a sailing yacht in a stiff breeze: that is, it seemed to slant sharply away to the right and at the same time to pitch. During the time in the trenches I had a curious freak of memory. A number of events occurred which I remember quite well, but not as having occurred then. If I may employ a simile, they are like beads of a broken necklace, which have slipped from the thread and are lying loose. For instance, one of the other subalterns recalled to my mind that I had paid him a flying visit in the trenches subsequent to my accident. I then remembered perfectly well having paid the visit, but I had no idea that it was in that time. He also reminded me of our colonel dodging shells. I quite remember the incident, but cannot place it in that time.
>
> "One other rather horrible feature of this business has been a sort of nightmare. I have not had it for some time now, for which I am profoundly thankful. These things were not nightmares, and they occurred several times. I would allow myself to doze in the dark at night and I would suddenly realize that I was sinking slowly to a most unthinkable, dreadful place, and there were things there that were too unpleasant to even write about. I knew that if I did not make an effort to get out I would never manage it. I made prodigious struggles and broke away from it, but in the dark I couldn't be sure whether or not I was quite clear of it, and I would find myself partly out of bed and in a state of most childish alarm. I therefore tried to avoid sleeping at night and succeeded quite well. The only other symptom of any interest is that when I turn about to the right, the horizon rushes past with an unsteadying effect: whereas the other way is not abnormal."

Recumbent, the examination was negative in every particular. Dr. Ashdowne, under whose charge he was, thought the reflexes on one side were perhaps a little increased; but the point of special interest was the extraordinary gait, with the feet far apart, the arms out, the man balancing himself, and making several attempts with the hind foot before taking a step. Not long after the accident he was seen by Dr. Gordon Holmes, who thought possibly there was a cerebellar shock. He is gradually recovering, and the gait has now become much nearer natural.

Functional Spasm of Leg Muscles.—After a slight attack of trench rheumatism in the middle of February, a man had frost-bite which did not proceed to necrosis, but which left him with both feet very painful, so that he could not walk. The right foot has recovered, though the sole is still a little sensitive. On examination, May 18, he was a very healthy looking man; recumbent, the legs looked normal, but perhaps the left was a little smaller. When he was asked to lift the leg from the bed, the muscles immediately went into spasm and remained rigid. The vastus externus stood out with great prominence, and when the effort was relaxed, the spasm evidently remained in it for a longer period. The muscles were not painful; the stocking anesthesia was gradually disappearing. He could walk, but carried the leg very stiffly, and could scarcely take a step on account of the pain in the sole. The other leg had not been involved. The deep and superficial reflexes were present, perhaps a little exaggerated.

At Blenheim there was a man, aged 23, who had rheumatism and cold-bite in the feet in December, with great tenderness. For several months he had persistent spasm of the anterior tibials on both sides. He could not straighten the foot voluntarily, and passively it could be done only with the strongest effort. The anterior tibials stood out with great prominence. The knee jerks were + +. There was no Babinski or ankle clonus. He could walk on his heels, but with difficulty. There was plantar hyperesthesia. He gradually improved, and the spasm lessened with massage and electricity.

At Milton Hill, a man after frost-bite had a spasm of the muscles causing talipes, so that he walked on the outer edge of the foot. Any attempt to straighten it caused him pain and spasm. He, too, had had a stocking anesthesia and symptoms of neurasthenia. Evidently the trench warfare is a nerve-racking business, causing all forms of troubles from mild nervous break-down to the severest types of functional disorder. In many cases, tobacco is a factor. The hardened veteran may smoke from twenty to thirty cigarets a day without inconvenience, but the unseasoned soldier cannot stand such excess. Among the convalescents, many cases of rapid pulse and slight anemia are, I believe, due to tobacco. Special provision is to be made for the nervous cases, on which a group of experts is already at work.

GAS POISONING

I have referred to the inefficiency of the modern rifle bullet as a weapon of war. The high-explosive shells, the hand grenades and the shrapnel do damage enough; but now comes the barbarous device with which men try to kill each other by the use of poisonous gases. Under date of May 4, General French reported the use of gases ejected from pipes laid into the trenches. "The effect of this poison is not merely disabling or even painlessly fatal, as suggested in the German press. Those of its victims who do not succumb on the field, and can be brought to hospital, suffer acutely, and in the larger proportion of cases die a lingering and painful death. Those of its victims who survive are in little better case, as the injury to their lungs appears to be of a permanent character." The reports of acute cases describe a suffocative edema of the lungs of an appalling character. Both the Hon. Robert Bacon, late minister to France, and Dr. Harvey Cushing speak of the sufferings of the victims as passing all belief—an incessant gasping for breath, cough, and the expectoration of a thin, blood-stained albuminous fluid. The mortality is high, but in a great many mild cases there is recovery, and the patients have been sent across. I have seen about thirty. Only three cases were severe; one patient had slight cyanosis, dyspnea, and many fine bronchitic râles; two had bronchitis. The other patients were convalescent, and nothing amiss could be determined on physical examination; but in several cases there was functional disability, shown by dyspnea on the slightest exertion. One man had suppression of the breath sounds; neither the inspiratory nor the expiratory murmurs could be heard distinctly. I should say that the prognosis was good in a majority of these cases. Anatomically, it is an acute bronchitis and bronchiolitis with exudation of a highly albuminous fluid into the tissues and air cells. In Dr. Haldane's laboratory I was shown sections from two lungs which presented the most extraordinary fragmentation of the alveoli. Macroscopically, the cut surface looked like emphysema, and there were air blebs beneath the pleura. The gas appears to be chlorin, which is irrespirable in dilutions of 1:10,000. Masks saturated with solutions of sodium hyperchlorid, with glycerin to keep the material moist, appear to be an efficient protection. Certainly the gas is a great addition to the "frightfulness" of war, but it is to be hoped that the Allies may not be forced to adopt such measures of scientific barbarism.

PARIS LETTER

Paris, May 20, 1915.

The War

THE WAR AND THE MEDICAL STUDENTS

A decree of 1902 authorizes the appointment to the grade of assistant physician (which corresponds to the grade of noncommissioned officer), in case of mobilization, medical students who have taken not less than three years of medical work toward their doctor's degree. Accordingly, all medical students who have this amount of work to their credit have been, except in cases in which there were special reasons for the contrary, appointed to this grade. Notwithstanding, the number of these medical officers has become insufficient because of the losses undergone by the medical service, which have borne heavily on the assistant physicians, and also because of the appointment of a certain number of these physicians to the grade of *aide-major* (sublieutenant). To supply the ever-increasing need of the medical service, it has been decided to reduce the requirements for the position of assistant physician. The president of the republic has therefore signed a new decree which authorizes the appointment during the war as assistant physicians, either in the field or in hospitals, of medical students who have had two years' work.

The minister of war has decided that medical students who have had not less than a year's work and who are at present mobilized either in the interior zone or in the zone of the armies may be released from their present duties to be employed in the medical service either as litter bearers or as nurses.

THE WAR AND ADVERTISEMENTS FOR FOODSTUFFS

The head of the service at the prefecture of police for the suppression of frauds has been designated by the minister of agriculture to institute investigations into the quality of milk, foods and drinks sold in the zone of the armies either to the soldiers or to the inhabitants.

Since the beginning of hostilities a certain number of manufacturers have been exploiting special food products which are offered to the public as possessing remarkably superior nutritive qualities and as supplying in small volume the place of large quantities of foods which have the reputation of being nutritious. These products are advertised particularly as foods for soldiers and children. The service for the suppression of frauds has analyzed these specialties with results which should be generally known. While none of these preparations seems to be actually harmful and while some—the minority—have actual nutritive advantages, analysis shows that most of them have no such especial nutritive value as is claimed for them in the advertisements. The documents in about twenty of these cases have been laid before the attorney-general, and the manufacturers in question have been notified to cease manufacturing and selling these products immediately.

INTOXICATION BY IRRITATING GASES

Drs. A. Dujarric de la Rivière and J. Leclerq had the opportunity of seeing at Calais a number of soldiers who have been subjected to the action of irritating gases (bromin and chlorin vapors) used by the Germans at Langhemarch. Frequently, in addition to the bronchial or pulmonary phenomena, there was hepatic or renal involvement. In many patients, the pulmonary phenomena consisted of an inflammation of all the respiratory tubes, including even the finest bronchial ramifications. Two patients presented the clinical picture of hemolytic icterus and a third during several days had hemoglobinuria. Several others had persistent attacks of albuminuria. Dr. Henrot of Reims has presented before the Académie de médecine a valved respiratory mask which protects the wearer from the asphyxiating vapors.

WOUNDS OF THE HEAD BY BALLS AND FRAGMENTS OF SHELLS

At one of the last sessions of the Société de chirurgie de Paris, Dr. Vinay, surgeon of Mont-Dore, called attention to the fact that men wounded in the head should receive a very strict examination. Many such patients during the first few days show no symptoms likely to arouse suspicion of an underlying lesion of the skull and brain; often it is only after the appearance of secondary infectious phenomena that operation is performed, and then it is frequently too late. There is, therefore, good reason for early operation, but, to avoid useless exploration and operation in cases in which no good can be done, Vinay advises the following line of procedure: In bullet wounds of the head, except lesions which are evidently superficial, a large flap of the scalp should always be turned back so that the skull may be examined. In the majority of cases a lesion of the skull will be found and will then be trephined. Wounds produced by fragments of shell should be explored with a probe and the skull should be systematically examined if the probe strikes directly on a bone. In most cases this will lead to a trephining operation which would have become imperative a few days later. By following these rules one is sure to extract fragments, disinfect the wound and drain it in season. If one happens to find an uninjured skull (which is the case about one time out of ten) a few stitches will repair all the damage without injury to the wounded.

MILITARY PHYSICIANS AND THE LEGION OF HONOR

Among the physicians on the rolls of the Legion of Honor are Dr. Quénu, professor of clinical surgery at the Faculté de médecine de Paris and principal physician of the second class (which corresponds to the grade of lieutenant-colonel) in the military government of Paris, and Dr. Potherat, surgeon of the hospitals of Paris, who as head physician of an ambulance at first at Nancy, then on the Marne and finally on the front of his army corps, "has rendered truly exceptional service."

DEATH OF DR. ALBERT BILLET

Dr. Albert Billet, principal physician of the first class and director of the medical service in the fifteenth army corps, has just died at the military hospital of Val-de-Grâce of the results of a disease contracted in service. He was a distinguished scientist and has left a great number of works dealing chiefly with the prophylaxis of epidemic and exotic diseases which have won him numerous distinctions from the Académie de médecine and the Académie des sciences.

BERLIN LETTER

Berlin, May 11, 1915.

Personal

Prof. F. Külbs, the present assistant at the first medical clinic at Berlin, has been called to Strassburg as director of the medical policlinic, to succeed Prof. Erich Meyer.

May 4, Ernst Haeckel completed his fiftieth year as regular professor of zoology at the University of Jena. The anniversary was saddened for him by the death of his second wife a few days before. He is 81 and is still in full mental vigor. Since 1907 he has been entitled to be called *Excellenz.*

The ophthalmologist, Prof. J. Stilling, died at Strassburg, May 3, aged 73. He was the son of Benedikt Stilling, a leading anatomist and surgeon in his day. Professor Stilling's most important works were on color blindness. His tables for testing vision for colors in candidates for railroad and marine positions are in common use not only in Germany, but in other countries, and have already passed through sixteen editions. Other popular works of his are a manual on the principles of ophthalmology and reports of research on the origin of myopia, glaucoma, etc.

Causes of Death in Prussia, 1913

The vital statistics for Prussia show that the death rate during 1913 from diseases of the digestive organs was 17.39 per 10,000 inhabitants (15.94 in 1912); from old age, 15.71 (17.37); from diseases of the circulatory organs, 15.09 (15.44); tuberculosis, 13.65 (14.58); pneumonia, 12.03 (13.48); cerebral hemorrhage and other affections of the nervous system, 10.31 (10.57); congenital debility, 10.25 (10.55); cancer and other neoplasms, 8.24 (8.15); diseases of the respiratory organs, 7.85 (8.69); accidents, 4.06 (4.07); diseases of the urinary and genital organs, 2.87 (2.86); suicide, 2.21 (2.12); whooping cough, 1.89 (2.31); diphtheria and croup, 1.81 (2.04); measles, 1.75 (0.46); scarlet fever, 1.08 (1.04); puerperal fever, 0.96 (0.99); erysipelas and other wound infections, 0.92 (0.97); influenza, 0.72 (1.12); typhus, 0.34 (0.38); other contagious diseases, 0.34 (0.33); violent deaths, 0.21 (0.20); contagion from animals' diseases, 0.01 (0.01); other known causes of death, 15.89 (16.30), and unknown causes, 3.39 (3.94).

The War

THE FOOD SUPPLY

A number of recent decrees demonstrate that the food supply is becoming more fully assured. The price of flour has been reduced, and for wheat flour more than for rye flour, in order to bring the comparatively ample supply of wheat flour within the reach of the less well to do. An order was promulgated a while ago that communities should put up meat so that it would keep, but this order has been rescinded, as the supply of cattle is ample in every respect, so that precautionary measures of this kind are unnecessary.

At Berlin the bakers are no longer permitted to mix fresh potatoes in their bread dough, but potato flour can still be used. Our bread consequently begins to taste nearly natural once more. The price of all the other foodstuffs and delicacies is but little above ordinary prices, and there is no lack in any direction, the fluctuations at first being now all straightened out.

FINANCING THE FAMILIES OF PHYSICIANS ABSENT ON MILITARY SERVICE

The efforts of the profession to come to the timely financial aid of the physicians serving in the field are continued in different parts of the country. At Berlin, the Kuratorium for war absentees, organized for this purpose, has realized remarkably successful results already with the associations with which it has had dealings. The organized free-choice insurance physicians have agreed to pay the Kuratorium 10 per cent., and the Verein of Berlin insurance physicians has agreed to pay 5 per cent. of their insurance fees for the year 1915. The central organization of insurance physicians has also commended to its affiliated groups that they place 5 or 10 per cent. of their income from the insurance societies at the disposal of the Kuratorium for the period of one year. By this means, including the 55,000 marks already subscribed by the medical chambers, there will be approximately 300,000 marks on hand for the war relief emergency fund for the absentees. All the other physicians of greater Berlin are now being solicited by a subcommission to learn how much can be depended on from others outside of those under contract with the insurance societies. It is anticipated that several times the amount subscribed by the Aerztekammer will be pledged.

LONDON LETTER

London, May 21, 1915.

The War

THE KING GEORGE HOSPITAL

Though all the permanent hospitals of the country have placed a large part of their accommodation at the service of the War Office, the number of wounded from this colossal war is expected to be so great that special hospitals are being erected. Of these the largest is the King George Hospital in London, which, as mentioned in a previous letter to The Journal, is the result of the conversion of a building intended for the new Stationery Office of the government. It will accommodate 1,600 patients, and the floor space is so great that 9½ acres of linoleum are required. The hospital is divided into five floors, the first being medical and the remaining four surgical. There are two operating theaters on each floor, one for septic and the other for nonseptic cases. There are special departments of all kinds and a magnificent Roentgen-ray department in the basement. The vast roof is converted into a garden with revolving shelters in which the sick can enjoy in the long summer days the coolness of a high altitude without discomfort from the wind.

PRECAUTIONS AGAINST AIR RAIDS

The German method of attack has rendered necessary the taking of precautions in London against a Zeppelin raid. The following steps have been adopted on the recommendation of the Royal Society of Medicine: It has been ascertained what hospitals, infirmaries and dispensaries could do in the event of civilians being injured in their neighborhood, first, in the matter of provision for first aid, how many individuals they could receive and treat, then to be transferred as quickly as possible to their homes, to hospitals, or to nursing homes; and secondly, how many they could receive for complete treatment. A map of the London area has been prepared and marked, showing these receiving centers with the number of cases receivable. If the map revealed that any district had no receiving center, say within a radius of one mile, application was made to the local authorities inviting them to provide some suitable place—a town hall, a public bath, a library or a school—to which the police and helpers might be directed to convey the injured. The local authorities would provide an adequate supply of the material required for first aid, and the committee have drawn up a list of such material with prices, and have arranged with some surgical supply company to provide it at cost price. Emergency centers have been marked on the map, and copies of the map or full topographic particulars have been sent to every police office. A list of surgeons, physicians and district nurses willing to help in each district has been prepared, with names and full addresses, and (when possible) telephone numbers, and a copy of each district list has been sent to each police office in the district.

THE SONS OF PHYSICIANS KILLED IN THE WAR

The medical profession has already a considerable death roll of its members killed in the discharge of their duties at the front. To this must be added the sad bereavement of the loss of sons who are combatants, in some cases only sons. Among the well-known members of the profession who have thus lost their sons are Dr. Lewis Jones, Sir Wilmot Herringham, Dr. Norman Moore, Dr. H. D. Rolleston, Sir James Barr, Mr. W. H. Battle, Dr. A. E. Garrod and Dr. Lauriston Shaw.

Association News

THE SAN FRANCISCO SESSION

An Invitation from Tacoma

The Pierce County (Washington) Medical Society extends a cordial invitation to the Fellows of the American Medical Association who attend the San Francisco session to stop over in Tacoma on their way to or from San Francisco. Dr. James R. Yocum, Box 1040, Tacoma, chairman of a committee of this society on entertainment, advises that if a few days' notice can be given, it will be glad to take visitors for a short trip on Puget Sound, or if preferred, on automobile rides about the city. The committee especially requests that parties, traveling by special train or by special car, give notice of the time when they are likely to reach Tacoma. The committee will also be glad to assist in making arrangements for trips by either rail or automobile to Rainier National Park or Mount Tacoma. For this trip, the railroad fare is $5; fare by automobile for the round trip to the inn, $6; to the foot of the glacier, $7; to Paradise Valley, $8. The trip by train takes part of each of two days. The automobile trip can easily be made in one day.

Marriages

George Ward Disbrow, M.D., Newark, N. J., to Miss Virginia W. Sprecher of Sykesville, Md., in Washington, D. C., May 23.

Capt. Floyd Kramer, M. C., U. S. Army, to Miss Dorothy Millikin Bevans, at Fort H. G. Wright, Fisher's Island, N. Y., May 25.

Edward Newman Roberts, M.D., Pocatello, Ida., to Miss Florence Bloom of West Burlington, Ia., May 27.

David Linn Edsall, M.D., Boston, to Miss Pendleton Kennedy of Washington, D. C., June 2.

Alfred Hoff, M.D., St. Paul, to Mrs. Merrun Dyer, at St. Luke's Hospital, St. Paul, recently.

Thomas Joseph Toner, M.D., Gary, Ind., to Miss Alma M. Hoffmeister of St. Louis, June 8.

Isaac W. Brewer, M.D., to Miss Charlotte Underhill of Bath, N. Y., June 8.

Ernest Lackner, M.D., to Mrs. Carrie Klein, both of Chicago, June 3.

Isidor Heller, M.D., to Miss Ida Engel, both of Brooklyn, June 1.

Deaths

Lewis C. S. Turner, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1882; a Fellow of the American Medical Association and once president of the Jasper County (Ia.) Medical Society; for thirty years a practitioner of Colfax, Ia., and for fourteen years of that time medical director of the Victoria Sanitarium; for many years health officer of Colfax and for three years a member of the local school board; died in the Mount Pleasant (Ia.) State Hospital, May 18, from arteriosclerosis, aged 60.

Fayette Hamilton Peck, M.D. New York University, New York City, 1881; a Fellow of the American Medical Association; surgeon in chief of the Utica and Mohawk Valley Electric Railway Company; local surgeon of the New York Central Lines; senior surgeon to St. Luke's Hospital and gynecologist to and president of the medical staff of the Utica City General Hospital; formerly health officer of Utica, N. Y.; died at his home in that city, May 24, from heart disease, aged 59.

James MacArthur, M.D. Queen's University, Kingston, Ont., 1878; president and for many years a member of the Ontario Medical Council; one of the founders of the London (Ont.) Medical Association; jail physician of London for more than fifteen years; died at his home in London, May 23, from heart disease, aged 60.

William James Gills, M.D. University College of Medicine, Richmond, Va., 1901; a member of the Medical Society of Virginia and secretary of the Mettauer Medical Society; formerly surgeon of the Third Battalion, Seventieth Infantry, Virginia Volunteers; physician to the almshouse of Prince Edward County, Va.; formerly a member of the town council of Farmville, Va.; died in the Johnston-Willis Sanitarium, Richmond, Va., May 22, from pellagra, aged 37.

Henry Bak, M.D. University of Vienna, Austria, 1872; formerly a surgeon in the Austro-Hungarian army and later a surgeon of volunteers during the Spanish-American War; president of the faculty and professor of practice of medicine and pediatrics in the Southern College of Medicine and Surgery, Atlanta, Ga.; for several years a practitioner of Chicago; died in the Michael Reese Hospital in that city, May 25, from carcinoma of the bladder, aged 68.

James Orton Edie, M.D. Jefferson Medical College, 1874; a member of the Michigan State Medical Society and Grand Rapids Academy of Medicine; formerly local surgeon at Grand Rapids of the Lake Shore and Michigan Southern Railway; consulting surgeon to the Butterworth Hospital and consulting physician to the Union Benevolent Association Hospital, Grand Rapids; who recently moved to Everett, Wash.; died in that city, May 25, aged 77.

James Francis Jacob, M.D. Jefferson Medical College, 1893; of Throop, Pa.; a Fellow of the American Medical Association and one of the best known Mid-Valley practitioners; one of the leaders in the work of caring for the widows and orphans of the great Pancoast disaster and since that time instructor in first aid at the mines; died in the Burns Private Hospital, Scranton, May 24, two days after an operation for gallstones, aged 44.

William Monroe Carling, M.D. Medico-Chirurgical College of Philadelphia, 1897; of Battle Creek; a member of the Michigan State Medical Society and the Southwestern Michigan Triological Society; formerly clinical assistant in ophthalmology in the Denver and Gross College of Medicine of the University of Denver, Colo.; a specialist on diseases of the eye, ear, nose and throat; dropped dead while playing golf at Battle Creek, Mich., May 30, aged 42.

Orange Pomeroy, M.D. Cincinnati College of Medicine and Surgery, 1860; Bellevue Hospital Medical College, 1871; of Chardon, Ohio; assistant surgeon of the Sixteenth Ohio Volunteer Infantry during the Civil War; manager and for twenty years president of the Chardon Telephone Company; died at his winter home in St. Petersburg, Fla., May 17, aged 79.

Melvin S. Jones, M.D. Western Reserve University, Cleveland, 1877; for several years a practitioner of Battle Lake and Dead Lake, Minn.; a member of the legislature from Ottertail County, Minn., in 1902; for the last year a resident of Orange, Calif.; died at his home in that place, May 19, from heart disease, aged 60.

Julia W. Carpenter, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1870; a Fellow of the American Medical Association; president of the Cincinnati Obstetrical Society in 1902, and vice-president of the Cincinnati Academy of Medicine in 1904; died at her home in Walnut Hills, Cincinnati, May 23, aged 74.

William S. Stewart, M.D. Hospital College of Medicine, Louisville, Ky., 1895; of Pine Bluff, Ark.; a Fellow of the American Medical Association and secretary of the State Board of Medical Examiners of the Arkansas Medical Society; died in Hot Springs, Ark., May 31, from acute nephritis, aged 45.

Paul H. E. Sloan, M.D. Medical College of the State of South Carolina, Charleston, 1859; surgeon in the Confederate service throughout the Civil War, and later a physician and druggist of Pendleton, S. C.; for many years secretary and treasurer of Clemson College, Pendleton; died at his home, May 15, aged 79.

Charles Henry Rosenthal, M.D. Cooper Medical College, San Francisco, 1881; University of Leipzig, Germany, 1884; a Fellow of the American Medical Association and one of the most prominent practitioners of San Francisco; died at his home in Berkeley, Calif., May 24, from angina pectoris, aged 58.

William Marion Forman, M.D. University of Louisville, Ky., 1877; for many years a practitioner of Nelson County, Ky., and at one time deputy internal revenue collector in that county, but since 1896 a resident of Louisville; died at the home of his son in that city, May 24, from heart disease, aged 59.

J. F. Coughenour, (license, Mont., 1889); a veteran of the Civil War and a pioneer of Montana; in the early days clerk of the district court at Deer Lodge; later a practitioner of the Bitter Root Valley at Corvallis; died at his home in Hamilton, Mont., May 18, from cerebral hemorrhage, aged 71.

Reuben Robinson, M.D. University of Nebraska, Lincoln and Omaha, 1896; also a graduate in pharmacy; for several years a member of the teaching staff of his alma mater; formerly a member of the State Medical Association of Texas; died at his home in San Antonio, Texas, May 20, aged 54.

John Robertson McIntosh, M.D. University of Edinburgh, Scotland, 1888; of St. John, N. B.; a member of the American Ophthalmological Society; a specialist on diseases of the eye, ear, nose and throat; died at his home in St. John, May 20, from cerebral hemorrhage, aged 53.

John E. McCuaig, M.D. Queen's University, Kingston, Ont., 1891; well known as an alienist of northern Pennsylvania; for several years a member of the staff of the Danville (Pa.) State Hospital; died at his home in Erie, Pa., May 18, from uremia, aged 47.

Daniel E. Berryman, M.D. University of Edinburgh, Scotland, 1873; for more than forty years a practitioner of St. John, N. B., and since 1883 coroner for the City and County of St. John; died at his home in St. John, May 17, from cerebral hemorrhage, aged 68.

Francis P. Troxell, M.D. University of Pennsylvania, Philadelphia, 1865; a veteran of the Civil War; a practitioner of Allentown and later in the fire insurance business; for several years owner of a fruit farm at Pomona, Calif.; died in Los Angeles, May 14, aged 80.

David Ballantyne Anderson, M.D. Johns Hopkins University, Baltimore, 1913; of Salt Lake City, Utah; an intern in Mount Sinai Hospital, New York City; aged 27; was accidentally drowned during a heavy windstorm, May 26, while canoeing on Lake George.

Henry Martin Rising, M.D. Yale University, New Haven, Conn., 1868; a member of the Connecticut State Medical Society; for forty-five years a practitioner of South Glastonbury, Conn.; died at his home in that place, May 18, from arteriosclerosis, aged 71.

Emil Kunz (license, Illinois, 1891), a practitioner since 1877; a member of the German Medical Society of Chicago and a well-known anatomic draughtsman; died at his home in Chicago, May 25, from cerebral hemorrhage, aged 66.

William Green Torrence, M.D. Dearborn Medical College, Chicago, 1907; Leonard Medical College, Raleigh, N. C., 1908; a respected colored practitioner of Asheville, N. C.; died at his home in that city, about May 24, aged 34.

Henry Dare Moore, M.D. Jefferson Medical College, 1887; a Fellow of the American Medical Association and a member of the surgical staff of the Philadelphia Stomach Hospital; died at his home in Philadelphia, May 27, aged 50.

Sumner Carruth Saville, M.D. Harvard Medical School, 1894; a Fellow of the American Medical Association; and a well-known practitioner of Boston; died at the home of his mother in Cambridge, Mass., May 27, aged 47.

John Rice Eldridge, M.D. Cooper Medical College, San Francisco, 1894; a specialist on nervous and mental diseases; formerly a member of the faculty of his alma mater; died at his home in Berkeley, Calif., May 23, aged 50.

Hilliard J. Yarbrough, M.D. Eclectic Medical University of Kansas City, Mo., 1905; of Dallas, Tex.; formerly a member of the Board of Health of Ada, Okla.; died at the home of his niece in Dallas, Tex., May 23, aged 63.

James Henry Joyce, M.D. Tufts College Medical School, Boston, 1903; formerly a member of the Massachusetts Medical Society; city physician of Salem, Mass., since 1906; died at his home in that city, May 28, aged 34.

Alexander Ault, M.D. McGill University, Montreal, 1886; for more than forty years a practitioner of Oshkosh, Wis.; but since 1908, a resident of Brooklyn; died at the home of his daughter in that city, May 19, from cerebral hemorrhage, aged 77.

Thomas William Nave, M.D. Tulane University, New Orleans, 1900; formerly a Fellow of the American Medical Association; a member of the State Medical Association of Texas; died at his home in Galveston, Tex., May 13, aged 37.

Max A. Boesger, M.D. Western Reserve University, Cleveland, 1884; formerly a member of the city council of Cleveland and coroner of Cuyahoga County, Ohio; died May 18, at his home in Cleveland, from appendicitis, aged 54.

Isaac T. Rand, M.D. Tulane University, New Orleans, 1886; a member of the Louisiana State Medical Association and once president of the Attakapas Medical Society; died at his home in New Iberia, La., May 14, aged 49.

John Samuel Hood, M.D. University of Michigan, Ann Arbor, 1867; a veteran of the Civil War and in 1898 a member of the legislature from Fleming County, Ky.; died at his home in Neption, Ky., May 14, aged 75.

William T. S. Duvall (license, District of Columbia), a practitioner since 1865; from 1867 to 1882, an employee of the postoffice department, Washington; died in Garfield Hospital, Washington, D. C., May 16, aged 80.

Alfred Bland Tucker, M.D. Southern Medical College, Atlanta, Ga., 1886; Long Island College Hospital, 1887; a member of the Medical Society of Virginia; died at his home in Berryville, Va., May 14, aged 58.

Gilbert L. Parker, M.D. Jefferson Medical College, 1874; a veteran of the Civil War, at the close of which he retired from service with the rank of lieutenant-colonel; died at his home in Philadelphia, May 19, aged 82.

Daniel E. Fuller, M.D. University of Buffalo, 1878; a member of the Michigan State Medical Society; died at his home in Hastings, Mich., May 12, from a fever contracted during a sojourn in Florida, aged 58.

William Neilson, M.D. Harvard Medical School, 1872; a member of the Massachusetts Medical Society and for many years a practitioner of Leominster, Mass.; died in the Leominster Hospital, May 14, aged 74.

Hugh Thomas D'Arcy, M.D. Wisconsin College of Physicians and Surgeons, Milwaukee, 1897; for several years a practitioner of Bloomington, Ill.; died at his home in Chicago, May 13, from sciatic rheumatism.

T. J. Murray, M.D. Kentucky School of Medicine, Louisville, 1878; for many years health officer of Somerville County, Tex.; died at his home in Glen Rose, Tex., about May 6, aged 78.

Alexander S. Johnson, M.D. Southern Medical College, Atlanta, Ga., 1881; a physician and druggist of Bowman, Ga.; died at his home in that place, May 5, from cerebral hemorrhage, aged 59.

William S. Pearsall, M.D. New York Homeopathic Medical College, New York City, 1886; died at his home in Brimfield, Mass., February 18, from interstitial nephritis, aged 54.

Dudley O. Wedge, M.D. Jefferson Medical College, 1874; formerly of Ipava, Ill.; but since 1908 a resident of Chicago; died at the home of his daughter in that city, May 11.

C. W. Gotcher, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1900; died at his home in Garza, near Denton, Tex., May 8, from heart disease, aged 41.

John M. Scott (license, Pa., 1881); a practitioner of Cabot, Pa., since 1871; died at his home in that place, May 20, from cerebral hemorrhage, aged 65.

Marion C. Castleberry, M.D. Gate City Medical College, Texarkana, Tex., 1904; died at his home in Harmony, Tex., April 4, from lobar pneumonia, aged 41.

Joseph Olmstead Allen, M.D. University of Buffalo, 1851; a retired practitioner of Fayette, Ohio; died at his home, May 20, from arteriosclerosis, aged 85.

Stephen Townsend, M.D. University of Wooster, Cleveland, 1891; died at his home in Columbus, Ohio, May 15, from cerebral hemorrhage, aged 67.

J. W. Bandel, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1903; died recently at his home in Ramona, Okla., from cerebral hemorrhage.

Robert Roy McCall, M.D. Barnes Medical College, St. Louis, 1900; formerly of Fulton, Mo.; died at his home in Alameda, Calif., May 8, aged 36.

John Franklin Holt, M.D. Rush Medical College, 1884; of Assumption, Ill.; died at St. Mary's Hospital, Decatur, May 17, from diabetes, aged 75.

J. W. Bozeman, M.D. Medical College of Georgia, Augusta, 1849; died at his home in Marietta, Ga., March 6, from senile dementia, aged 89.

William C. Raynor, M.D. Hahnemann Medical College, Chicago, 1881; a veteran of the Civil War; died at his home in Milwaukee, Wis., May 12.

William Veloss Huffman, M.D. Jefferson Medical College, 1887; died at his home in Millersburg, Ky., May 16, aged 56.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MORE EPILEPSY CURES

Some of the Less Important Nostrums of This Type

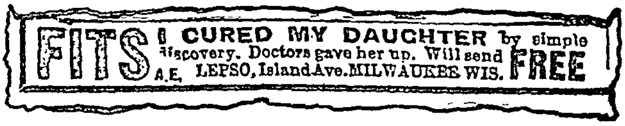
E-LEP-TINE

E-Lep-Tine is an epilepsy cure of the usual type. It is put on the market by the Miller Medicine Company, St. Mary's, Kan. This concern apparently has connected with it:

George Miller, M.D.
A. DeDonder
R. G. Erbacher

George Miller, according to our records, was graduated by the University of Pennsylvania in 1878. In addition to its "cure for fits" the Miller Medicine Company also puts out a purgative tablet "Rellim"—a rather obvious inversion of Miller. E-Lep-Tine has been marketed under the usual misleading claims, and there is nothing about the advertising matter to lift this product above the mediocrity of fraudulence common to epilepsy nostrums. "A large number of so-called 'cures' have been offered to afflicted persons," says the Miller Medicine Company, "but very few of them have effected any absolute cures." But:

> "Dr. Miller has to his credit now more cures than any practicing physician."



FITS I CURED MY DAUGHTER by simple discovery. Doctors gave her up. Will send FREE A.E. LEPSO, Island Ave. MILWAUKEE WIS.

The references in the advertising matter to the fact that taking E-Lep-Tine will produce drowsiness in the patient and, in certain instances, "cause small pimples to show on the body" naturally leads one to conclude that the essential drug in E-Lep-Tine, as might be expected, is some form of the bromids.

The Indiana State Board of Health in the second edition of its bulletin on "Medical Frauds" gives the following information regarding E-Lep-Tine:

Sodium and potassium bromides..........16 per cent.
Alcohol .... 6 per cent.
Ammonium valerate.

The Indiana chemists also state that while the price of this nostrum is $1.75, its value is 10 cents.

HERBETTA CURINE

Herbetta Curine is put on the market by the Herbetta Medicine Co., Indianapolis, Ind. According to the advertising matter:

> "Herbetta Curine is not an old remedy worked over. . . . it is not a nostrum or patent medicine. It is a scientific combination of four tablets discovered only after prolonged and diligent experience and research."

The company says that Herbetta Curine is not a cure-all; it is merely intended:

> "To improve the digestion and assimilation of food."
> "To restore tone and vigor to the wornout and exhausted nervous system."
> "To restore the natural action of the liver, kidneys and bowels."
> "To make rich blood."
> "To put health and life into the whole body."
> "To restore the sexual organs to their natural functions."

A specimen of Herbetta Curine was received from a correspondent recently. The package contained three envelopes labeled 1, 2 and 3, respectively, and in addition a number of red tablets. The following examination is reported by the Association's laboratory:

ENVELOPE No. 1:—This contained small, light green tablets. Tests indicated that these tablets contained a water-soluble phosphate of iron.

ENVELOPE No. 2:—This contained small gray tablets which were very bitter and probably consisted essentially, or largely, of some "bitter tonic."

ENVELOPE No. 3:—This contained small green tablets which responded to tests for aloes or aloin. These tablets constituted the laxative agent in the "treatment."

RED TABLETS:—These had a strong odor of sassafras and tests indicated that they were essentially strontium and potassium bromid.

Each "treatment" costs $5 and the company offers to issue a "guarantee" to the effect that after thirteen treatments are taken the victim may have subsequent treatments for $1.50 each "as long as treatment may be needed."

LEPSO

Lepso is sometimes advertised under the name of M. Lepso, Box 226, Milwaukee, Wis., and at other times by the Lepso Company, Island Avenue, Milwaukee. In addition to advertising in the cheap magazines the Lepso Company has obtained the names of victims by purchasing them from letter brokers. In this connection the following paragraph from a circular letter sent out by the Lepso Company is interesting.

> "A dealer in lists of names informed me that he had some names of people who are afflicted with Epilepsy for sale and he thought that I could use these names. I inquired as to how he happened to get his list of names and was informed that a so-called Epileptic Remedy company had sold them to him. So evidently once upon a time you must have answered an advertisement of a so-called company. It was certainly surprising for me to learn that these companies have no more loyalty or respect for the confidence of their customers than to betray them in this manner. As for myself, I would never think of selling the names of people who answer OUR ad. We keep all letters strictly confidential as any firm ought to have honor enough to do. Well, I got this list of names from this dealer because I know that our 'LEPSO' is a real fit remedy."

After a cursory analysis of Lepso in 1911 the Association's chemists reported:

> "Contains bromids equivalent to about 6.8 grams potassium bromid in each fluidounce."

As the dose recommended was one-half ounce, this was equivalent to giving 3.4 grams (51 grains) of potassium bromid to the dose. Such a dangerous mixture may be sold indiscriminately to the public without warning or even mention of presence of bromids.

Correspondence

Venarsen—A Disclaimer

To the Editor:—I enclose a pamphlet, received from the Venarsen Company, which states that venarsen is being used in the Vanderbilt Clinic by several men including myself.

Several weeks ago an agent of the Venarsen Company called to see me and I promised to give venarsen an experimental trial. The enclosed advertisement was sent to the profession actually before I had received the samples of venarsen. When the samples were received, they were not even opened, but were sent back to the company by express. You can see, therefore, that the Venarsen Company had no right whatsoever to use the names of any of the men associated with the Vanderbilt Clinic. Even if we had experimented with the drug and found it to be a valuable product, we would not allow our names to be used in this way. You can see therefore, that the company is entirely unscrupulous, and deserves to be severely chastised for misusing the names of reputable physicians.

I wish to say also that the publishers of the *Journal of Cutaneous Diseases* accepted a venarsen advertisement on a short contract. A short contract was given so that the advertisement could be discontinued if the Council on Pharmacy and Chemistry of the American Medical Association reported unfavorably on the product. We understand that the Council has reported unfavorably, and therefore, the venarsen advertisement will be removed from the *Journal of Cutaneous Diseases.*

This letter is approved by every physician you find on the pamphlet, and who belongs to the staff of the Vanderbilt Clinic. I wish that you would feel at liberty to publish this letter if you so desire, or to use it in any way you think advisable. GEORGE M. MACKEE, M.D., New York.

Editor, *Journal of Cutaneous Diseases.*

The Opera Glass in Roentgen Examination

To the Editor:—For the past year I have had occasion to examine a great many roentgenograms, mostly of the chest. I observed that certain shadows were more or less constant in the hilum of both lungs, more on the right than on the left. Trabeculae extending in all directions could be seen in most plates, but very indistinctly. It occurred to me that if one could magnify the plate in some way, the finer shadows could be brought out. I procured an ordinary pair of opera glasses, and placed the plate where a strong light, either artificial or natural, would bring out the shadows. Standing about 15 feet away and focusing the glasses, I obtained a much enlarged view of the plate, clearer in outline and an almost stereoscopic picture.

The advantages of this method of inspecting roentgenograms are:

1. A small picture could be taken to bring out the detail of the part to be examined and could be enlarged merely by looking at it with the opera glasses.
2. A clearer view will be obtained.
3. The picture is almost stereoscopic.
4. No expensive apparatus is necessary.

J. J. SINGER, M.D., St. Louis.

The Treatment of Lice of the Eyelashes and Brows by Hydrogen Peroxid

To the Editor:—In view of the increased interest in body parasites as a cause in transmitting disease, I wish to call attention to the great value of hydrogen peroxid in the treatment of pediculi ciliaris, or lice of the eyelashes and brows. My experience in the treatment of this disgusting pest with the various mercurial solutions and ointments usually recommended and employed for the purpose of destroying these parasites has not been satisfactory. While it is possible after a few days' use of mercurial preparations to destroy the lice, this does not rid the patient of the ova or nits. The treatment must be continued for days and weeks—until all of the ova are hatched. The ova cling tenaciously to the hairs, and the cause of the trouble is controlled if the ova are removed at once. By the application of a ten volume strength of hydrogen peroxid simply by mopping the eyelashes or brows with the solution on absorbent cotton and then passing the hairs through a pair of sterilized Kuhnt's or Noyes' trachoma forceps, the living parasites and ova will be removed in a few minutes, thus putting a quick end to the affection. There is no danger of bleaching the hair, from this limited use of hydrogen peroxid.

EDWARD L. MEIERHOF, M.D., New York.

Preventive or Prophylactic Packet in the Navy

To the Editor:—Apropos of the recent circular letter of the Secretary of the Navy to the commanding officers, in which that official refuses to authorize the issue of the "preventive or prophylactic packet" to the sailors on our war ships, I wish to inquire whether it is not possible to change the method of furnishing this packet so that the responsibility for its use would be squarely placed where it belongs—wholly on the men who use it? I grant that it is questionable whether the government should countenance immorality by providing against the consequences thereof. At the same time if the use of this packet is discontinued, this discontinuance will indubitably have as a practical result a greater incidence of disease. On the other hand its use, as is well known, has resulted and would continue to result in conserving health and effecting a considerable economy.

It is manifest that sailors must have the same use of their freedom as the ordinary citizen and every man must determine his conduct for himself. The Secretary of the Navy must admit that in the present state of human progress, we have only a choice of evils and in such a case, duty bids us choose the least.

Could not the government, as represented by its officers, emphatically warn the soldiers and sailors of the dangerous results from illicit indulgence and while absolutely refusing to countenance any infraction of the moral law, place within the reach of all the "preventive packet" in such a manner that its use would be absolutely the individual act of the sailor or soldier?

I have only the knowledge of a civilian and a medical man on this subject, but am of the opinion that, if it is not already done in the Army and Navy, arrangements should be made whereby every man would have brought home to him a knowledge of the dangers and fateful consequences of venereal diseases. After this is done, every man must decide for himself as to his conduct.

I wish to raise the above question for consideration and discussion.

Yours very truly,

RICHARD DEWEY, M.D., Wauwatosa, Wis.

Sphygmomanometer Cuff in Intravenous Injections and Hyperemic Treatment

To the Editor:—In THE JOURNAL, Jan. 9, 1915, p. 182, was an abstract of an article on the use of the cuff of the sphygmomanometer to cause a venous stasis, in introducing a needle for intravenous injection. I have used this method for a couple of years, and I believe the main part of its usefulness is the fact that by covering the release valve with a sterile towel, the pressure in intravenous injection can be relieved without breaking aseptic technic or requiring the assistance of a second person.

Also I find this apparatus to be very efficient in giving Bier's hyperemic treatment, because a definite venous stasis can be regulated by the definite pressure in the arterial supply, thus eliminating the guesswork which is evident with the old tourniquet method for producing hyperemia.

ARTHUR A. RANG, M.D., Washington, Ind.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE HARRISON NARCOTIC LAW

A PROTEST AGAINST THE ANNUAL FEE

To the Editor:—I have addressed the following inquiry to the Secretary of the Treasury. I have no fault to find with the provisions of the Harrison law, and in line with your editorial suggestions I believe that the profession should willingly give what time and trouble is necessary to carry out its provisions. I do believe, however, that it is time *for the profession to rise in mighty protest against the petty exactions* which are being piled on by the authority "Regulation" (and even without), for it is news to me that laws can be amended and amplified by any executive power, as is most certainly being done. H. S.

"*To the Secretary of the Treasury.*—Inasmuch as the Harrison law reads that 'on and after the first day of March, nineteen hundred and fifteen, every person . . . shall register, etc. . . . and on or before the first day of July, annually thereafter, . . . shall pay to the said collector a special tax, etc.,' I have the honor to inquire by what authority of law we are now required again to register, with the attendant trouble, expense and absurdity of being required to make per*sonal affidavit to a fact which is a matter of public record — i. e., our* legal qualifications to practice medicine.

ANSWER.—The protest of our correspondent is evidently called out by a circular letter recently sent out by the collectors of internal revenue of the various districts to all persons liable for internal revenue taxes. Physicians registered under the Harrison law are called on for the payment of the annual special tax of $1 imposed by that law. The law provides that at the time of registration and on or before the first day of July annually thereafter, every person who handles any of the specified drugs shall pay to the collector of his district a special tax at the rate of $1 per annum. As has been previously explained, the law went into effect March 1, 1915. The fiscal year of the United States government runs from July 1 to June 30. Consequently, the tax for the fraction of the year from March 1, 1915, to July 1, 1915, was prorated, each person registering paying 34 cents for the fraction of the year. It was explained at the time that a further payment of $1 would be necessary on or before July 1. This payment will cover the special tax until July 1, 1916, when another payment will be necessary. Consequently, the letter sent out by the collectors of internal revenue of the different districts is not a demand for reregistration, but is simply a notice for the payment of the annual tax. The receipt for the payment of this tax, like all internal revenue taxes, is in the form of a special tax stamp. This method of collecting taxes is the same for all persons affected by internal revenue measures. The letter sent out by the collector of internal revenue for the Chicago district went to 70,000 taxpayers in this district alone, including proprietors of theaters, shows, billiard and pool tables, bowling alleys, dealers in tobacco, liquor, oleomargarin, physicians, druggists, dentists and others. It was not a special measure applicable to physicians alone.

The application of an internal revenue tax to physicians is an entirely new proposition. It is not strange, therefore, that many physicians, like our correspondent, resent the necessary routine measures unavoidably connected with the collection of such a tax. It is well for a physician to remember, however, that the imposition of this small and nominal tax marks the first effort which has been made by the federal government to control the use of habit-forming drugs and to restrict them to legitimate purposes. The collection of this registration fee each year is a necessary part of the operation of the law. The circular to which our correspondent objects is simply a notification to persons registered under the law that the annual tax under the law is due and payable.

ALLEN METHOD OF TREATING DIABETES

To the Editor:—Can you send me or tell me where I can get literature on Allen's method of treating diabetes?

P. H. Greeley, M.D., Farmington, N. H.

To the Editor:—Please describe in full Allen's treatment for diabetes.

G. G. White, M.D., Elkaden, Iowa.

To the Editor:—How may I learn enough about the Allen starvation plan to use it? E. M.

Answer.—According to Allen, the first step is to fast—preferably in bed—until glycosuria ceases, and then for from twenty-four to forty-eight hours longer. Acidosis, if present, is thus rapidly reduced. Alcohol may be given during the fast, in the form of whisky or brandy. When the fasting patient has been free from glycosuria from twenty-four to forty-eight hours, the next step is to begin feeding very slowly and cautiously. A fixed program is unnecessary. It is desirable to establish the diet to suit the needs of the individual patient. The one requirement is that the patient must remain free from both glycosuria and acidosis. Any trace of sugar is the signal for a fast day. The original fast, to clear up the urine, may be anywhere from two to ten days in length, but after that no fast need be longer than one day. The factors to be considered in the diet are protein, carbohydrate, fat and bulk. Frequently the first thing given after the fast is carbohydrate. No distinction is necessary between different forms of starch, but there are advantages in using vegetables. The first day after fasting, the only food may be 200 gm. of vegetables of the class containing 5 and 6 per cent. of carbohydrates. This is increased day by day until a trace of glycosuria appears, which is checked by the fast day. The purpose of such a program is to learn the carbohydrate tolerance and to clear up the least trace of acidosis.

After the carbohydrate period, according to Allen, or sometimes in place of it, protein may be given. On the first day perhaps one or two eggs are given and nothing else. More protein, such as eggs and meat, is added day by day until the patient either shows glycosuria or reaches a safe protein ration. The purpose is to learn the protein tolerance and to regain protein lost as quickly as possible. Fat is somewhat less urgently needed except in weak and emaciated patients. It can be added gradually as conditions seem to indicate. An element of bulk in the diet is necessary to give a comfortable feeling of fulness and to prevent constipation. For this purpose, green vegetables are advantageous. When they are fed raw, cooked in steam, or boiled and evaporated, so that no water is thrown away, it is possible to estimate the quantity of carbohydrate, and the valuable salts remain. If the case is so severe that even green vegetables cannot be tolerated, the vegetables may be boiled through three waters, throwing away all the water. Nearly all starch is thus removed, and the most severe cases may take these thrice-cooked vegetables.

One result of the initial program described is loss of weight. The attempt to put on too much weight, according to Allen, is one of the sure ways of bringing back all symptoms, and is probably one of the chief causes of past failure in treating severe cases.

In brief, it is necessary to restrict all classes of food, and to test the tolerance of each patient in each particular class. Carbohydrate is given if possible, but is kept safely below the limit of tolerance. The following articles may be consulted:

Allen, F. M.: Studies Concerning Glycosuria and Diabetes, Boston, Harvard University Press, Cambridge, Mass., 1913, $9. (Theoretical and experimental; does not deal with treatment of patients.)

Allen, F. M.: Studies Concerning Diabetes, The Journal, Sept. 12, 1914, p. 939.

Allen, F. M.: Treatment of Diabetes, *Boston Med. and Surg. Jour.*, Feb. 18, 1915.

Hill, L. W., and Sherrick, J. L.: Allen's Treatment of Diabetes, *Boston Med. and Surg. Jour.*, May 13, 1915; abstr., The Journal, May 29, 1914, p. 1875.

DENTAL CLINICS

To the Editor:—In The Journal, May 22, 1915, p. 1782, the statement is made, in reply to the inquiry of "R. B.," that "New York City has a number of school clinics maintained by the board of education, and there are four clinics in connection with the various hospitals, maintained by cooperation of the dentists and various philanthropic organizations of that city."

The facts are that the board of education has no dental clinics for schoolchildren. The board of health has seven dental clinics, six with paid dentists and one with a volunteer dentist in attendance. There are in New York City, aside from these municipal dental clinics, twenty-one clinics for the free dental treatment of schoolchildren.

I feel sure that there has been some misunderstanding on Dr. Ebersole's part regarding this matter and, on behalf of the Bureau of Child Hygiene of the Department of Health of New York City, I should like to have this correction made in the same column in which the original letter appeared.

S. Josephine Baker, M.D.,
Director, Bureau of Child Hygiene, New York.

LITERATURE ON MASTITIS

To the Editor:—Please give me references to articles on mastitis, with special consideration of the bacteriology, prophylaxis and treatment.

Adam P. Leighton, Jr., M.D., Portland, Maine.

Answer.—The following is a list of articles on this subject:

Eicher, S.: Acute Mastitis, *Beitr. z. Geburts. u. Gynäk.*, 1912, xvii, No. 2; abstr., The Journal, July 13, 1912, p. 150.

Strong, R. A.: Mastitis, abstr., The Journal, May 18, 1912, p. 1538.

Bertels, A.: Chronic Septic Mastitis and Malignant Degeneration, *Deutsch. Ztschr. f. Chir.*, September, 1913; abstr., The Journal, Nov. 1, 1913, p. 1669.

Keyes, A. B.: Mastitis Lactantia, *Surg., Gynec. and Obst.*, September, 1914.

Hauch, E.: Treatment of Puerperal Mastitis, *Ugesk. f. Læger.*, April 23, 1914; abstr., The Journal, May 30, 1914, p. 1766.

Mastitis in Mumps, Queries and Minor Notes, The Journal, May 23, 1914, p. 1681.

Whitcher, B. R.: Mastitis in Pregnancy, Report of Case, *Boston Med. and Surg. Jour.*, Dec. 24, 1914.

Van Lier, E. H.: Chronic Septic Mastitis, *Nederlandsch Tijdschr. v. Geneesk.*, 1915, ii, No. 8.

Muller, G. P.: Chronic Septic Mastitis, *Ann. Surg.*, November, 1914.

Capps, J. A., and Davis, D. J.: Epidemic of Streptococcus Sore Throat in Jacksonville, Ill. Traced to Milk of Cows with Streptococcus Mastitis, *Arch. Int. Med.*, November, 1914; abstr., The Journal, Dec. 5, 1914, p. 2071.

Human Evaluation.—The study of human values can only be made in the light of mankind's regard for itself. This has been, in all times, all ages and all countries, the lightest of human considerations. My observations lead me to believe that mankind has not improved the treatment of itself. The human sacrifice is required just as much today as it ever was in the Temple of Baal or on the altars of the Aztecs.—Seitz.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, July 6. Chairman, Dr. W. H. Sanders, Montgomery.

Alaska: Juneau, July 6. Sec., Dr. Harry C. DeVighne, Juneau.

Arizona: Phoenix, July 6-7. Sec., Dr. John Wix Thomas, Phoenix.

California: San Francisco, June 15-18. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

Connecticut: New Haven, July 13. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Eclectic: New Haven, July 13. Sec., Dr. T. S. Hodge, 19 Main St., Torrington; Homeopathic: New Haven, July 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

Delaware: Dover and Wilmington, June 15-17. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

District of Columbia: Washington, July 13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Florida: Jacksonville, June 15-16. Sec., Dr. E. W. Warren, 102 Front St., Palatka.

Illinois: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.

Indiana: Indianapolis, July 13-15. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.

Maine: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Maryland: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.

Maryland: Homeopathic, Baltimore, June 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

Massachusetts: Boston, July 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Mississippi: Jackson, June 15-16. Sec., Dr. E. H. Galloway, Jackson.

Missouri: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

New Hampshire: Concord, July 6-7. Regent, Mr. H. C. Morrison, Concord.

New Jersey: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

New Mexico: Santa Fe, July 12. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: Albany, Buffalo, New York and Syracuse, June 29-July 2. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

North Dakota: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, July 13. Sec., Dr. Ralph B. Smith, 502 Daniel Bldg., Tulsa.

Oregon: Portland, July 5. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

Rhode Island: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.

South Dakota: Pierre, July 12. Sec., Dr. Park B. Jenkins, Waubay.

Tennessee: Memphis and Nashville, June 25, 26. Sec., Dr. A. B. De Loach, 426 Scimitar Bldg., Memphis.

Texas: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.

Utah: Salt Lake City, July 5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Vermont: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.

Virginia: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.

Washington: Seattle, July 6. Sec., Dr. G. N. Suttner, Baker Bldg., Walla Walla.

Wisconsin: Milwaukee, June 29-30—July 1. Sec., Dr. J. M. Beffel, 3200 Clybourn St., Milwaukee.

Wyoming: Laramie, June 28-30. Sec., Dr. H. E. McCollum, Laramie.

UNIVERSITY OF MINNESOTA AND THE MAYO FOUNDATION

Last February it was announced that William J. Mayo and Charles H. Mayo of Rochester, Minn., had set aside $1,500,000 to establish what was called the Mayo Foundation for Medical Education and Research and had offered to turn this foundation over to the University of Minnesota. A special committee was appointed by the board of regents of the university to make a thorough investigation of the matter and that committee has reported. The following is an abstract of the report:

Abstract of Report

The committee recommends that for a trial period of six years the university establish a part of its graduate work at Rochester, appoint investigators and teachers, set standards of work and graduation, and accept the maintenance funds, quarters, equipment and other opportunities offered by the Mayo foundation.

The committee further recommends that in case the experiment proves successful the work be continued on a permanent basis under these conditions: (1) complete control by the regents of endowment funds and income; (2) appointment by the regents of all directors, teachers, investigators and others connected with the Mayo foundation; (3) the maintenance at Rochester, Minn., of quarters and administration for the foundation work, with right to make from the endowment income appropriations for medical investigation anywhere inside or outside the state.

It is believed that through this policy the university would fulfil a public duty by: (*a*) providing notable facilities for advanced medical training; (*b*) standardizing and controlling in the public interest the preparation of medical specialists; (*c*) fostering medical research not only on a state but on a national basis; (*d*) furthering the growth of graduate work on the university campus, and (*e*) increasing the efficiency of undergraduate teaching at the university.

The committee presented the following educational considerations as the basis of its recommendations:

GRADUATE WORK IN MEDICINE

There seems to be uncertainty in many minds as to just what is meant by graduate work in medicine. So-called "postgraduate" courses in "polyclinic" schools are brief courses for busy practitioners who desire to keep "up to date," but these courses do not approach true graduate work in seriousness, or length of time or advanced character of instruction.

A graduate student in chemistry, history or any other branch of learning spends from two to five years in thorough training, and devotes a good part of his time to original investigation of a chosen topic. Graduate instruction in this sense is being extended to medicine.

Unlike undergraduate teaching, graduate instruction is not given in classes or in a fixed course of study. The essential point of the training is its individual character. Opportunities for such work are measured by the number and control of properly selected cases, by the character of the teachers, and by the character of the organization conducting the work.

In graduate work of any kind research plays a large part. Originality and ability to conduct investigation must be demonstrated.

The studies of a medical graduate in any given specialty should consist of: (1) Further work in the fundamental sciences of anatomy, physiology, etc.; (2) adequate practice in the technical procedures of diagnosis and treatment; (3) a thorough acquaintance with the literature of the specialty and related branches; (4) original investigation relating to his specialty.

Medical knowledge has become too extensive for any one to become a master of all of it. Such knowledge is still being increased by the discovery of new facts coming from systematic study by trained investigators. Investigators are trained by doing original work under critical and inspired leadership. This is the prime function of the graduate school. Again, adequate training must be provided for the men who desire to follow teaching as a career.

Heretofore, so far as special training is concerned, the best specialists have been, by force of circumstances, self-made. Success has depended more on native ability than on systematic training.

Not only does the profession lack standards, but the public has no way to judge as to the competency of special practitioners. The establishing of authoritative standards is needed for the protection of the public.

It is the duty of the university to extend the bounds of knowledge in this difficult field of medicine, and to do so, trained investigators are necessary. Again, it is the duty of the university to standardize graduate medical instruction.

The first duty of the medical school is to provide a thorough undergraduate course for the training of general practitioners, and as a basis for advanced work. Such a course demands laboratories, clinics and a highly trained staff. The provision of a first-rank undergraduate course involves a margin of leadership and facilities which can be used for a limited amount of graduate work also, and this cannot be developed beyond a certain point without great expense.

COST OF MEDICAL EDUCATION AT MINNESOTA

The medical plant of the University of Minnesota has already cost approximately $1,100,000. The clinical facilities have cost $300,000. The present annual budget of the medical school is $150,000, which includes a considerable expense for teaching done for other divisions of the university.

The cost of hospital and dispensary maintenance is $80,000 per annum. At least four-fifths of this amount is chargeable to the care of the indigent sick of the state, but by the legislature and in the public mind this is regarded as a part of the cost of medical education. On this basis the present total budget of medical education is $230,000 per annum.

The administrative board of the medical school have estimated that to round out the medical plant and double the present hospital facilities will cost for buildings $600,000 and for increased maintenance $60,000. To provide also for instruction and investigation a further annual cost of $40,000, which will bring the totals for plant and annual maintenance to $1,700,000 and $330,000, respectively.

It is evident that there must be a limit to the amount of state support. The extension of hospital facilities; the building and support of pavilions for women and for children, and the housing of the school for nurses ought to appeal to individual donors. If therefore the university is to provide graduate instruction and research for Minnesota and the Northwest, it must utilize all available facilities which can be controlled and standardized. But none of these latter can be regarded as substitutes for a university-controlled hospital and laboratory system for undergraduate instruction.

USE OF PRIVATE AND MUNICIPAL HOSPITALS

Municipal and private hospitals can be used in both undergraduate and graduate medical education to a limited extent and better arrangements may be made as time goes on. In the twin cities, however, the development of adequate facilities for clinical instruction of the advanced type in the municipal hospitals appears impracticable for some time to come. In private hospitals the work is rarely coordinated under one organization, the patients being considered as the individual cases of particular doctors. There is nothing which renders the private pay patient any less valuable for study than the charity patient, and in graduate teaching, where the student is a qualified and legalized physician and is the assistant of the teacher, there seems no reason why private patients should not be used. All the laboratory branches have conducted graduate work for several years. The work is standardized as a regular part of the graduate school of the university.

GRADUATE WORK AT MINNEAPOLIS AND ROCHESTER

In the clinical departments this type of work has recently been undertaken. All departments are now offering graduate work excepting those of dermatology and genito-urinary diseases. Six "teaching fellows" with aggregate stipends of $3,000, are giving their full time to the university. They do a small amount of teaching but devote the larger share of their energies to advanced study and research. There are two "graduate scholars" exempt from tuition fees, who devote half their time to graduate work.

The total number of graduate students in the medical school is twenty-one, of whom nineteen are candidates for the degree of M.S., Ph.D., or D.Sc.

Graduate work in the medical school is of importance not only for itself but also because of its stimulating effect on the faculty. It counteracts the deadening effect of undergraduate work, with its yearly repetition of elementary courses. It adds interest to teaching and keeps the faculty in active contact with research. Moreover, by such work the demand of the public for trained service is being met.

The Mayo foundation has well equipped laboratories in charge of full-time and thoroughly competent men. It has adequate library, museum, autopsy and editorial facilities, and it has at its disposal a wide range and large amount of clinical material in most respects representative. Although the patients are not charity patients the arrangements are admirable for affording graduate students the fullest advantages. They act as assistants to the permanent heads of clinical and laboratory services and are shifted from service to service so as to get full experience in all branches related to their major interest.

Under these conditions thirty salaried fellows and six voluntary workers are engaged in graduate medical study of a high degree of excellence. These men are qualified for enrolment in the graduate school of the university.

The staff of the foundation is composed of high-grade men. Several are recognized leaders in their special fields. Many of the staff have had teaching experience, and the group as a whole is scientifically and professionally on a par with medical facilities in the larger universities.

There is in Rochester a large amount of material in surgery, surgical pathology, gastro-intestinal diseases, goiter and Roentgen ray. There is also a large collection of clinical records systematically kept and so cross referenced as to be available for statistical studies. When it is realized that conclusions as to the causes and relations of diseased conditions can be drawn only by the comparison of large numbers of cases, the value of these records for medical research becomes apparent.

ADVANTAGES OF THE AFFILIATION

The facilities of the two institutions in large measure supplement each other. For all the specialties the university can furnish training in anatomy, physiology and pharmacology not available at Rochester. Thus the scientific foundation of the graduate students in both places would be assured. These students would constitute one body under the educational guidance of the dean of the graduate school. Such guidance is essential and cannot be supplied outside the graduate school of a university.

If the graduate work at Rochester passes to the control of the university, medical education in Minnesota will become a unit under the state university.

Advantageous cooperation between the clinical departments in the two places, with increased efficiency as a result of united facilities, are numerous. The following may be mentioned: In medicine the student would get at the university training in acute diseases and other conditions ordinarily found in the medical wards. This would be supplemented by experience at Rochester in the diagnosis and treatment of diseases not so frequently found in the University Hospital. The student desiring to specialize in women's diseases would be trained in obstetrics at the university and in gynecology both at the university and at Rochester. The training afforded in orthopedics at the hospital for the crippled and deformed at Phalen Park, under supervision of members of the university faculty, would be supplemented by the study of a somewhat different class of cases at Rochester. This is true in varying degree in all branches, for the quantity and kind of cases vary in the two clinics.

Educational efficiency would be improved by a freer exchange of staff members between the two institutions. Research workers could combine the appropriate materials of both places. The reciprocal stimulus of generous rivalry would be of value to both groups

THE UNIVERSITY TO CONTROL ALL MEDICAL EDUCATION

All forms of medical education in Minnesota, including graduate medical instruction, should be centralized in the university. The university should enter this new movement with conviction, extend to it the educational leadership which is needed and see to it that a university diploma shall be the recognized mark of proficiency in the medical specialties. It is reasonable to expect that the interchange of work between Minneapolis and Rochester, the possibilities of research and the presence of graduate students in both places would make it easier for the university to attract to its staff the best men from all parts of the country.

The effect on the undergraduate student body would be good. Ideals of research would be constantly before them. Able and ambitious students would be attracted to the undergraduate course because, while the graduate school is open to all medical graduates, those who come up through the university's own course of study and who establish high records would be most directly in line for fellowships and for laboratory appointments.

The extension of graduate teaching proposed would enable the university to serve the state by insuring more expert medical service to its people, by furthering research into cause, cure and prevention of disease, by protecting the public by a system of education, examinations, diplomas and degrees for specialists against incompetence and exploitation. The committee recommends, therefore, that the university establish graduate work at Rochester, Minn.; that such work be directed by the graduate school through its dean and the medical school graduate committee; that professors and other teachers be appointed on the nomination of the same committee, to carry on graduate teaching and research at Rochester, and that the offer of clinical and other facilities and gifts made by the Mayo foundation be accepted.

ABSTRACT OF FORMAL AGREEMENT

1. The agreement is made between William J. Mayo and Charles H. Mayo as Founders; the Mayo Foundation; Burt W. Eaton, George W. Granger and Harry J. Harwick, Trustees of the $1,500,000; and the University. It sets forth copies of the articles of the Foundation and of the two trust agreements and asserts or provides:

2. That the Mayos and their associates have entered into an agreement with the Foundation for the period of six years after Sept. 1, 1915, to pay all moneys and provide all subjects, facilities and material necessary to enable the Foundation to carry out its agreement with the University.

3. That the Board of Regents is by law required to manage the University and appoint its professors and employees and

fix their salaries and may accept in trust gifts and bequests on the terms and conditions on which they are granted.

4. That the University is maintaining a medical school and is carrying on graduate medical and surgical instruction and has determined to increase its faculty, secure additional facilities, sites and material, appoint additional professors and assistants and carry on part of the work of the school of medicine at Rochester.

5. That the Foundation gives and grants to the University free of charge the right to use for medical and surgical education and research space and rooms and equipment in a certain building in Rochester, together with all clinical and other materials and opportunities for graduate medical and surgical work available at the Mayo Clinic, St. Mary's Hospital, the Kahler Sanatorium and the Colonial Sanatorium in Rochester, for a period of six years after Sept. 1, 1915.

6. That the Foundation also agrees during that period to pay all salaries fixed by the Board of Regents and payable to professors, assistant professors and instructors appointed by the Board.

7. That until Sept. 1, 1921, the net income of each of the trust funds shall remain in the hands of the Trustees as an added increment to the principal of the funds.

8. That from and after Sept. 1, 1921, the principal of the funds and all accumulations to that date shall be turned over to and become the property of the University.

9. That the funds and the income therefrom are granted in trust to be used by the University as follows:

(a) The principal shall always be kept intact by the Board of Regents and be invested in suitable securities.

(b) The income from the funds shall be used for the purpose of graduate medical and surgical instruction and research carried on under the direction of the Board of Regents at Rochester, Minn., with the understanding that appropriations may be made for carrying on medical investigations anywhere within or outside of the state of Minnesota.

10. That the agreement may be terminated at any time on or before Sept. 1, 1921, on one year's notice given by either of the parties to the other, subject to the cooperation of all parties to discharge to the satisfaction of the University outstanding obligations to graduate students.

11. That the University accepts the gifts and grants, and obligates itself annually to furnish to the Foundation until Sept. 1, 1921, a budget stating the needs of this branch of the work at Rochester.

Massachusetts March Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, March 9-11, 1915 The total number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 68, of whom 40 passed, including 8 nongraduates and 6 osteopaths, and 28 failed, including 15 nongraduates and 2 osteopaths. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Medicine and Surgery	(1915)	76.1
Medical School of Maine	(1914)	75
College of Physicians and Surgeons, Baltimore	(1914)	78.6
Johns Hopkins University	(1913)	76.1
College of Phys. and Surgs., Boston (1912) 75;	(1914)	78.2
Harvard Univ. (1909) 75.2; (1913) 80.2, 83.2; (1914) 78.4;	(1915)	79.1
Tufts Coll. Med. School (1913) 81.2; (1914) 75, 75.2, 77.1, 78.2,		78.8
Univ. of Mich., Dept. of Med. and Surg (1894) 75;	(1912)	75.9
Dartmouth Medical School	(1900)	76.1
Albany Medical College	(1914)	80.7
University of the City of New York	(1880)	75
Jefferson Medical College	(1914)	80
University of Vermont	(1914)	77
University College of Medicine, Richmond	(1910)	78.2
McGill University	(1875)	75
Nongraduates 75, 75, 75, 75, 76.4, 76.5, 78.1,		79.5
FAILED		
Georgetown University	(1912)	71.9
Baltimore Medical College	(1911)	71.8
College of Physicians and Surgeons, Baltimore	(1914)	73.3
Maryland Medical College	(1913)	56.1, 71.3
Coll. of Phys. and Surgs, Boston (1907) 64.8; (1911) 71.6;	(1913)	62
Tufts College Medical School	(1912)	67.2
Dartmouth Medical School	(1884)	50.2
University of the South	(1902)	65.5
Nongraduates 40.2, 50.4, 62.1, 65.7, 66.7, 67.2, 67.7, 69, 69.7, 70.1, 70.9, 72.2, 72.3, 73,		73.6

Book Notices

Determination of Sex. By L. Doncaster, Sc.D. Cloth. Price, $2. Pp. 172, with 22 illustrations. New York: G. P. Putnam's Sons, 1914.

Those who wish a clear, critical and conservative exposition of the present scientific status of this ancient, yet ever new problem cannot do better than read this little book. The author is a well-known investigator in the field of the inheritance and determination of sex, and he therefore brings to the general treatment of the subject the sureness of the expert. At the same time he avoids dogmatism. The treatment is confined to the problems of sex determination in animals and man, and the author has "striven to avoid as far as possible the use of technicalities which might embarrass the untrained reader." The general argument will be everywhere intelligible to any well-educated person, even though certain special illustrative cases may require very close study. The book is an excellent antidote to some sensational and unscientific books.

As the author points out, there is no single character of living things, apart from the fundamental properties of life itself, so widely distributed as sex. Yet of its fundamental significance and function we have no real knowledge. It is commonly associated with reproduction, yet we may have reproduction without sex, and even sexual differentiation that is not associated with reproduction. The origin and significance of sex are utterly obscure problems in which no real recent progress has been made. On the other hand, the problem of sex determination, that is, of the causes which lead to the origin of individuals of one or the other sex, has advanced in many notable ways in recent years, so that it may be stated that certain of the causes are now well understood in many cases. The author does well in emphasizing the fact that the term "determination of sex" is used in two senses, namely, in the sense of ascertaining the causes of sexual differentiation, and in the sense of controlling the production of either sex at will. It is obvious that the causes when ascertained may turn out to be uncontrollable; indeed, much of the most important recent work leads to a decidedly pessimistic outlook for eventual control of sex production. But the author does not allow himself to be entirely convinced in this direction, and comes to the final conclusion that we may "regard the control of sex in man as an achievement not entirely impossible of realization." The facts which show that sex is determined by the germ cells either before or at the time of their union naturally receive the major consideration, because these facts constitute the newest and most precise data we have on the subject. There is presented evidence as to the stage at which sex is determined, the study of the inheritance of sex-limited characters, the problems of the inheritance of secondary sexual characters, the extraordinary facts concerning chromosome differences between male and female individuals, and the differentiation of the germ cells in such cases into male-determining and female-determining, all of which indicate an early determination of sex before the onset of embryonic development. Against these are set the data concerning atypical sex ratios, whether occurring in nature or under experiment, which seem to indicate an influence of external factors in sex determination. The collective data are then considered in a chapter in which the various theories are discussed in an admirable spirit, and the author's position is stated. The determination of sex in man comes up for separate consideration in the concluding chapter.

Chirurgische Operationslehre für Studierende und Aerzte. Von Prof. Dr. Friedrich Pels Leusden, ord. Prof. der Chirurgie. Second Edition. Paper. Price, 20 marks. Pp. 788 with 766 illustrations. Berlin: Urban and Schwarzenberg, 915.

This work was written chiefly for students and practitioners, but the author thinks the specialist as well will find in it something of value. Considerable new matter has been added in this edition, which is an improvement on the first; but this edition is open to the same criticisms which were made against the first, namely, it is distinctly a German work, and little that has originated outside of that country finds mention. The author recognizes this, but declares that he has not allowed patriotism to influence him. He then says: "I have taken great pains impartially to give authors due credit, but who will boast to so master even the entire literature of one's own country that an error might not slip in? That German literature is best known to me is self-evident, and therefore Germans in a German treatise have fared the best." As a partial excuse for errors in this direction, the author naively says, "If I have presented anything that is good which I have attributed to a wrong author I am sorry, but it doesn't change any that which is good." Many difficult and complicated operations remain unillustrated for the reason, as the author states, that "the beginner does not yet need them and the experienced operator can do without them." The same might well be said of most operations, but that principle does not contribute to the completeness of a work.

Society Proceedings

COMING MEETINGS

American Medical Association, San Francisco, June 21-25.

American Assn. of Med. Milk Commissions, San Francisco, June 17-19.
American Academy of Medicine, San Francisco, June 25-28.
American Association of Anesthetists, San Francisco, June 21.
American Climatological and Clin. Association, San Francisco, June 18-19.
American Laryn., Rhin. and Otol. Society, Chicago, June 15-16.
American Ophthalmological Society, New London, Conn., July 6-7.
American Society of Tropical Medicine, San Francisco, June 14-16.
Arizona Medical Association, Prescott, June 17-18.
Montana State Medical Association, Bozeman, July 14-15.
Nat'l Assn. for the Study and Prev. of Tuberculosis, Seattle, June 14-16.
Nevada State Medical Association, Reno, June 17-19.
New Jersey Medical Society, Spring Lake, June 22-24.
North Carolina State Medical Society, Greensboro, June 16.
Washington State Medical Association, Tacoma, July 20-22.

AMERICAN NEUROLOGICAL ASSOCIATION

Forty-First Annual Meeting, held at New York, May 6-8, 1915

(Concluded from page 1937)

Paralytic and Other Persistent Sequelae of Migraine

Dr. J. Ramsay Hunt, New York: In the vast majority of cases, a tendency to migraine entails no more serious consequences than the recurrence of periodic headaches of varying degrees of severity. Headaches of this character are often associated with curious transitory focal symptoms, as scotoma, hemianopsia, hemiparesis and hemiparesthesia. More rarely, evanescent aphasic attacks and mental disturbances accompany the attack. These focal manifestations are purely functional in nature, and disappear promptly with the subsidence of the other symptoms of the paroxysm. They are generally regarded as manifestations of vascular spasm and this theory is in harmony with their temporary and evanescent nature. In rare cases permanent and often serious consequences ensue. The paralytic and other permanent complications of migraine may appear in various forms as ocular palsies (migraine ophthalmoplegique), organic hemiplegia with aphasia, hemianopsia and optic atrophy. A recurrent facial paralysis has also been ascribed to migraine (facioplegic migraine), and presumably of the same nature and pathogenesis as the ophthalmoplegic of this affection. Migraine, which is usually so harmless, may on occasion be the cause of serious and permanent sequelae. Of great importance from the standpoint of the permanent paralytic sequelae, such as are described in this paper, is the question of the influence of recurring attacks of migraine on an already existing arterial sclerosis. It is very evident that in the presence of cerebral arteriosclerosis, however slight, crises of hemicrania are much more likely to be the cause of vascular accidents, such as thrombosis and hemorrhage, than would be the case in perfectly normal vessels. In the recognition of migraine paralysis the essential points to be considered are: (1) the establishment of a definite clinical history of genuine or idiopathic migraine, and (2) the direct relationship of the paralysis to the migraine paroxysm. As many attacks of hemicrania arise during the day, terminating in a heavy sleep, the presence of paralysis in the morning on awakening would be strong presumptive evidence of an etiologic relationship to migraine. Special emphasis should be placed on the presence of what may be termed "warning symptoms," that is, the recurrence of transient ptosis, diplopia, hemianopsia, hemiparesis, aphasia and jacksonian seizures. A permanent damage to nerve structure resulting from an attack of migraine is fortunately a rare sequel. In this group of accidents, the ocular palsies rank first in importance, because of their relative frequency (migraine ophthalmoplegique). Next in importance among the cranial nerve complications is involvement of the optic nerve resulting from thrombotic occlusion of the central artery of the retina and possibly the retrobulbar neuritis. The graver paralytic complications are naturally those affecting the brain itself, and these are the result of occlusion of the cerebral vessels with consequent encephalomalacia. Such lesions have been observed in the distribution of the sylvian artery causing hemiplegia, hemianesthesia and aphasia, and in the distribution of the posterior cerebral artery when homonymous hemianopsia is the characteristic symptom. While thrombosis is the usual lesion in such cases, it is not improbable that rupture of the vessel also occurs. There are two other groups of cases which should be considered from the standpoint of permanent vascular lesions, namely, the epilepsy which is so often associated with migraine, and the vertigo permanens. Both of these conditions are usually regarded as merely functional substitutions or alternations of the neurosis itself, in other words, as a kind of migraine equivalent. The possibility of a permanent vascular focus resulting from migraine must be considered as a possible etiologic factor in the presence either of epilepsy or of persistent vertigo.

DISCUSSION

Dr. Joseph Collins, New York: There is one feature of these cases that Dr. Hunt has not mentioned, which I consider to be of very great importance, and that is the syphilitic feature. In a series of 100 cases of syphilitic disorder of the nervous system coming in succession, I found two cases of typical migraine, one of them associated with ophthalmoplegia in which the evidence of a syphilitic origin was found in the blood and in the cerebrospinal fluid. I have come now to the conclusion that it is well in the majority of cases of migraine, practically in all cases in which there is paralysis of any sort, to submit them to the laboratory tests.

Dr. L. F. Barker, Baltimore: I can confirm Dr. Hunt's observations of hemianopsia with migraine. I had two cases, one in a lady in middle life. In both of these instances the hemianopsia was temporary, though complete at the time. It passed off and I have not heard from the patients since. In view of what Dr. Hunt has said, it is possible that they may later develop hemianopsia. I have made it a routine practice to make serologic examinations in all neurologic and medical cases. In neither of these cases, however, was a positive Wassermann present, and in my own experience, while migraine and lues do coexist sometimes, it is not common. I have wondered as to the nature of this temporary hemianopsia, and think of a possible temporary lesion in the chiasm and also of a spasm of the occipital artery supplying around the calcarine fissure.

Dr. William G. Spiller, Philadelphia: Some years ago Dr. de Schweinitz sent me a patient who had two attacks of ophthalmoplegia. He had had migraine over many years. His parents had had migraine. Recently I saw a patient who had had two attacks of transitory ophthalmoplegia. One patient died two or three years later of an apoplectic stroke. I have seen two cases of hemianopsia with migraine.

Dr. Alfred Gordon, Philadelphia: Several years ago I had a physician under my charge for periodic attacks of migraine. That man comes from a migraine family. After an attack of migraine I found him hemiplegic on the right side, with astereognosis of the right side and motor aphasia. Not all the symptoms were marked, but they were sufficiently pronounced to observe. He made a complete recovery and is well up to the present time.

Dr. P. C. Knapp, Boston: There is one form of involvement of the cranial nerves of which Dr. Hunt has not spoken, namely, the anesthesias occurring in the distribution of the fifth nerve in connection with attacks of migraine. In regard to the ophthalmoplegic migraines, there are a few interesting points to which Dr. Hunt has not referred. In the great majority of them the ophthalmoplegia is an incidental occurrence. In a very few instances, there is a fairly regular occurrence of the transitory ophthalmoplegia with each attack of the migraine, but it must be borne in mind that even these cases of ophthalmoplegia of short duration occurring as time goes on become more and more permanent. I have seen two cases. Both of the cases have been permanent. One of them I saw a year or two ago, about ten years after the first attack of hemianopsia, coming on with the migraine, and the second one has continued now seven or eight years.

Dr. N. E. Brill, New York: Only recently a nurse in the training school who had had occasional attacks of migraine for a number of years developed a hemiplegia affecting the right arm and leg without any aphasia and without any demonstrable sensory disturbances. Dr. B. Sachs would remember the case, as I asked him to see it at the same time. The hemiplegia disappeared in three days, leaving the girl rather exhausted. She recovered rapidly, and has had an attack of migraine since but no hemiplegia.

Dr. J. Ramsay Hunt, New York: In regard to the pathology of transient and permanent attacks, I myself believe they have the same pathologic basis. They are essentially a vascular spasm. Dr. Collins' suggestion of the possibility of syphilis in migraine is a very important one. As far as possible I have excluded syphilis and regard the cases as essential, or idiopathic, migraine.

Case of Landry's Paralysis: Report on the Histopathological Findings

Dr. E. D. Fisher, New York: The patient, a boy of 15, suddenly became ill, complaining of weakness in the lower extremities. After admission to the hospital, his condition became progressively worse until a complete paraplegia of the lower extremities developed. This was of the flaccid type. Within seven days the upper extremities became involved in the same manner. The muscles of all limbs became atrophied. Reaction of degeneration was present in the lower, and marked quantitative and qualitative electrical changes in the upper extremities and shoulder muscles. There were also partial dissociation of touch, pain and temperature sense in these extremities. Subjective sensory disturbances were a constant accompaniment. Toward the end of his illness, most of the cranial nerves became involved. The bacteriologic examination of the blood and spinal fluid was negative. The cytologic examination of the spinal fluid was negative. A slight rise in temperature marked the entire course of the disease. The patient died of asphyxiation after an illness of six weeks. The necropsy was performed by Dr. John H. Larkin, and specimens of the cord and brain stem and sciatic nerve were prepared by him for examination. The histologic examination revealed changes throughout those tissues. The spinal nerve roots and the sciatic show marked parenchymatous and interstitial changes with an infiltration in the perivascular and perineural lymph spaces of leukocytes, plasma cells and some gitter cells. The cells of the posterior horns at all levels of the cord show a central chromatolysis, especially marked in the cells of Clarke's column. Such type of cell degeneration is also evident throughout the bulb and pons. The cells of the motor neurons show in addition two other types of degeneration, namely, a swelling and coalescence of the Nissl bodies, a tygriosis with eccentric nuclei and staining very deeply and in some places an extensive cell vacuolization. Around these there are to be seen satellite cells which at times dip into the cell body. Their prolongations are visible and are retaining to some extent meshes of chromophilic bodies. The vessels and capillaries are engorged throughout, and at times are seen to burst, producing hemorrhage into the neighboring tissues. Frequently we encounter capillary aneurysms and thrombi. Hemorrhages, rather minute and to all appearance recent, are present at all levels of the cord and brain stem both in the gray and white matter. A marked glia proliferation is a feature throughout. At some levels of the cord an ependymitis of the central canal is present. In a word, we are dealing here with neuritic as well as a cellular involvement, the former being more pronounced. The cell changes of the central chromatolysis type are of a reactionary character owing to remote influences in their neuraxon, while those of the tygriosis type speak for a primary cell involvement as a result of an inflammatory condition around and in the cells. The clinical aspect and the pathologic changes that we find in cases of an acute ascending paralysis of the type of Landry point to an infectious process. Our case would show that both the infectious agent and its toxin are responsible for these changes. Which of the two are predominating is an open question. The predominating type of pathologic changes in Landry's paralysis is that characterized by inflammatory myelitic changes with very slight, if any, nerve changes. For this reason, recent investigators are inclined to regard this disease as poliomyelitis. But in this affection we deal with a distinct etiologic factor and are able to reproduce the characteristic pathologic picture. In Landry's paralysis, divers kinds of cocci and bacilli are found, and the pathologic picture is not uniform. We may conclude that the clinical picture is the criterion of Landry's paralysis, that pathologically there may be a purely cellular, or neuritic only or a neuricellular involvement, and that the time element is no criterion of the disease, since it may last from eight days to eight weeks.

DISCUSSION

Dr. Carl D. Camp, Ann Arbor, Mich.: Some time ago I reported a case of acute unilateral ascending paralysis which came to necropsy in which were found in the peripheral nerves very much the same degenerative changes as are described here. At that time I also noted the abnormality of the anterior horn cells and regarded it as a phenomenon secondary to the changes in the nerve.

Dr. Israel Strauss, New York: Of course we all know cases of Landry's paralysis in which no pathologic lesion is discovered. At first when this disease was described we did not have at our disposal the technic described today. Since those cases were described, other cases have been described, and present distinct clinical features which render it possible that there can be acute ascending paralysis without very much in the way of microscopic lesion.

Meningitis Sympathica

Dr. I. Strauss, New York: Meningitis sympathica is the name given to those changes which occur in the cerebrospinal fluid when an inflammation is present in the neighborhood of the meninges. The pressure of the fluid is greatly increased, and may reach as high as 400 mm. There is an increase in the cellular elements, the cells generally being polynuclear leukocytes. The fluid is sterile. There may be no symptoms of meningitis, but very often there is considerable neck rigidity, and Kernig's symptom is present in varying intensity. One of the most frequent causes of the condition is brain abscess, especially where there has been a previous otitis. It may also be present in patients in whom there is an inflammation of the accessory sinuses or of the structures adjacent to them. We frequently encounter intracranial inflammatory conditions in which there is no evidence of meningeal irritation; but when meningitis sympathica is present it aids us both in the diagnosis and the treatment.

Case of Central and Peripheral Neurofibromatosis (von Recklinghausen's Disease)

Dr. Peter Bassoe and Dr. Frank Nuzum, Chicago: The case was that of a boy 15 years old at death. From the age of 4 years he had attacks once a year, lasting two weeks to three months, of pain in the back near the right scapula. Dragging of left foot was noted after the first attack. At 10 years he had eight eye muscle operations. He had a lump on the left side of the neck noted three years before death, and a pelvic tumor three months before death. Findings on examination suggested basal brain tumor and cord tumor. Several subcutaneous nodules led to a correct clinical diagnosis. Necropsy showed large neurofibromas in both cerebellopontile angles, large tumor of the cauda equina, numerous small tumors on various cranial and spinal nerves, and also tumors on nerve roots, in places invading the cord. There was a large tumor outside the rectum.

Abderhalden Reactions and Defective Mental and Physical States

Dr. S. D. W. Ludlum and Dr. E. P. Corson White, Philadelphia: In the blood of a thymectomized dog we obtained reactions to testis and pancreas, just as had previously been done in patients who had physiologic symptoms of thymectomy. Following this we saw three cases of backwardness in children in which the symptoms were those of lymphatism. These cases reacted to thymus. Results of treatment of these cases with pituitary extract were phenomenal. A girl of 5 years showing gigantism reacted to pituitary. The symptoms were controlled by thyroid extract. We have had ten cases of a hypomaniac state in adults pointing to hyperpituitarism rapidly controlled by the opposite hormone. A case of infantilism which reacted to thymus started to grow when put on pituitary extract.

DISCUSSION

Dr. Henry A. Cotton, Trenton, N. J.: This is the most important problem before the psychiatrist. The question of the influence of the ductless gland or the glands of internal secretion on mental conditions, probably more especially in dementia praecox, seems to be evident today. Following out Cushing's ideas on hypopituitarism, we examined a number of cases. We examined the blood pressure, sugar tolerance, the polyuria, and all of these cases have shown one thing, that there was evidence that the pituitary gland was at fault. There is probably a group of cases in which the thymus is affected, another in which the pituitary is affected and we know the effect the suprarenal and the other glands have. As these studies are developing we can at least look to some definite facts to be gotten out of this work to indicate a proper theory.

AMERICAN GYNECOLOGICAL SOCIETY

Fortieth Annual Meeting, held at White Sulphur Springs, W. Va., May 18-20, 1915

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Dr. Franklin H. Martin, Chicago: Subcutaneous transplantation of ovarian tissue does not increase the risk of operation. In the majority of patients the graft will persist for a time. In my cases it is still present after twenty-seven months, eighteen months, and in three others more than a year. In some patients it appears to functionate, as shown by the apparent development of graafian follicles, by variation in size and tenderness, and by menstruation when the uterus remains. The presence of one ovary in the pelvis does not necessarily interfere with the success of the graft. Those patients in whom ovarian tissue has been grafted seem to have less discomfort from the premature menopause.

What Is the Fate of the Ovaries Left In Situ After Hysterectomy?

Dr. Hiram N. Vineberg, New York: Clinically, it has been found that the freedom from the climacteric syndrome in hysterectomized women, in whom the ovaries have been conserved, is only relative to that which obtains in the same class of women in whom the ovaries have been removed. A generous estimate would be 20 per cent. in favor of the former. To obtain the benefits claimed by the advocates of conservation, the ovaries should be retained at all ages and not limited to those under 40 years, as is done by most of them, inasmuch as it has been shown that of the women who suffer most severely from the artificial menopause, 46 per cent. were only 45 and over. Subsequent disease of the conserved ovary does occur in some cases, the number no doubt being much larger than would be inferred from the records found in the literature. I am of the opinion that the doubtful clinical advantages accruing from retaining the ovaries in hysterectomy are more than counterbalanced by the risk to which the patient is subjected from subsequent disease and adhesions of the conserved ovaries. I would, therefore, not retain the ovaries in any case of hysterectomy, unless I could leave enough of the lower segment of the uterus with its endometrium to insure the function of menstruation, for in my experience the knowledge imparted to the woman that her ovaries have not been removed has but little significance or moral effect when she learns that she will no longer menstruate.

DISCUSSION

Dr. Frank F. Simpson, Pittsburgh: The first instance of transplanted ovarian tissue was one that encouraged us in this line of work. The patient, a young woman of considerable importance in the community, in the thirties, had a perforated appendix, with drainage for general peritonitis. The appendix was removed. Later there were adhesions about both adnexa, which were treated. Six operations were done by leading general surgeons of New York. The young woman was a confirmed invalid. She suffered intensely at the menstrual periods. She, her father and mother insisted on immediate removal of the uterus and adnexa. Every effort was made to relieve the suffering. At the end of a year she suffered as much as she did at the beginning. I removed the pelvic structures. I did not transplant the ovary into the abdominal cavity, thinking it would cause serious trouble, and that disintegration of the ovarian tissue or infection might readily cause serious damage requiring a second abdominal operation. So it occurred to me that to transplant it beneath the skin might be successful. We used the adnexa, transplanted about half of the ovary, it lived, and today it is quite the size it was when transplanted. On a number of occasions I felt the ovary, and I believe I felt the graafian follicles. In that young woman the functional result was good. Instead of being a confirmed invalid and lying in bed, she is about, is vigorous, and practically not harmed at all by the disagreeable phenomena of the precipitated menopause.

Dr. John O. Polak, Brooklyn: I have four unreported cases of transplantation of the ovary. In three of them the entire ovary was transplanted in a pocket in the prevesical space. Two of these have caused no trouble so far as the ovarian graft is concerned. This graft has seemed to have no effect on the symptoms of the menopause. A third has become cystic. She is the only woman of these three who has had relief from the symptoms of the menopause. My fourth case was a graft of the ovary into the cornu of the uterus at the point of excision of the tubes. This patient menstruated for nine months, and then menstruation ceased. She then developed all the symptoms of the postclimacteric with considerable severity, but gradually they have passed away.

Dr. J. Wesley Bovée, Washington, D. C.: The ovary floats freely in the peritoneal cavity. An ovary that becomes encased by adhesions, and not necessarily by marked infection, begins to undergo sclerocystic degeneration. When we transplant these ovaries we cover them entirely with tissue, and they will undergo degeneration. I do not believe that the results are good or will be good so long as this plan is followed. When we resort to transplantation of ovarian tissue, it must be done in such a way as to give freedom to such tissue.

Dr. Hiram N. Vineberg. New York City: I have had two cases of autotransplantation of the ovary, taking a small wedge-shaped piece of the ovary and inserting it into the lower abdominal wound, leaving it in between the fat and the skin. In one of these cases the operation was done nine months ago and in the other about six months ago. There has been absolutely no difference in the healing of the wound. So far as one can tell from frequent examination since then, one could not tell that a transplantation had been done.

Dr. John J. Clark, Philadelphia: I have endeavored to expose the cortex, open the ovary, pull it open as one would a kidney, and allow the vascular portion to come into direct contact with the peritoneum, which I have utilized, and not the subcuticular tissue, as Dr. Simpson has done. Thus far my experience has not been particularly satisfactory.

Dr. Herman J. Boldt, New York: In view of the fact that there are undoubtedly instances in which the symptoms of the menopause are at least ameliorated if a seemingly normal gland is conserved either by ordinary conservation or by transplantation, I want to continue that line of work. On the other hand, I can only say that in those instances in which conservatism has been practiced, I have had the same disagreeable features to contend with that others have had. I recall two instances in which it became necessary for me to reopen the abdomen and to remove an ovarian cyst from the ovary which had been retained. I cannot recall any instance in which the removal of cysts has been more difficult than in those two cases. However, as I have said, there are instances in which the symptoms of the menopause are at least ameliorated and where they are entirely absent.

Dr. J. Riddle Goffe, New York: About twelve years ago I made my first adventure into this field of work. It was on a young woman whose tubes were absolutely destroyed by disease. She was anxious to have children. I removed both tubes and one ovary; then I slit open widely the whole fundus of the uterus, being careful to preserve the mucosa of the salpinx in my obliterating operation, and to retain as far as possible the lymphatics and the arterial nutrition of the ovary. Without splitting the ovary, I turned it right around and hung it free in the uterine cavity. The patient had a slight discharge of blood at the regular time of menstruation once; then she escaped from my observation, and I have not been able to get any further information in regard to the case.

Dr. Joseph Brettauer, New York: Each case for ovarian transplantation ought to be individualized. To some women of a nervous temperament or who are neurasthenic, the removal of the ovaries is a more serious matter than it is to other women who are not so constituted.

Dr. Willis E. Ford, Utica: I am pessimistic about leaving parts of ovaries. My experience has prejudiced me against it.

Dr. Philander A. Harris, Paterson, N. J.: It has been my rule in removing the uterus to leave an ovary or both ovaries, if possible. I leave all the tissues that are healthy. I was rather encouraged when I heard Dr. Goffe speak of having placed a piece of ovary in the uterus, but if the woman became pregnant, would it not cause a rupture of the uterus?

Dr. Herman J. Boldt: Are there cases in which, after an ovary has been left and the oviducts removed, the woman has subsequently become pregnant?

Dr. Bovée: There are many such cases on record.

Nitrous Oxid in Labor

Dr. N. Sproat Heaney, Chicago: (See abstract of paper by Dr. F. W. Lynch in The Journal, April 3, p. 1187.)

DISCUSSION

Dr. John O. Polak, Brooklyn: Is it possible to continue nitrous oxid gas from the very beginning of labor as an analgesic method? About what would be the approximate cost of conducting a twelve to twenty-four-hour first stage with it, and how much personal attention would the obstetrician have to give in the management of the case?

Dr. Willis E. Ford, Utica: Was there any cyanosis in the children, and is there more cyanosis from the use of gas than from ether?

Dr. Louis Frank, Louisville: I have used nitrous oxid gas as the anesthetic of choice in my surgical work for almost three years, including three cases of cesarean section. The administration of nitrous oxid gas and oxygen for analgesic purposes requires the services of an expert. It is the most dangerous of all anesthetics in unskilled hands, while in skilled hands it is the safest. The cost of the gas is lessened materially where large tanks are used and the gas is manufactured in the hospital.

Dr. Hiram N. Vineberg, New York: In one or two instances I attempted to do a plastic operation under nitrous oxid and oxygen, but the blood was so black that the field of operation was obscured. We had to stop. I do not know whether it was improperly administered or not.

Dr. N. S. Heaney: During the latter part of the first stage and second stage we can give gas for 60 cents an hour. The amount of oxygen varies with each patient. It depends how quickly the woman passes into cyanosis and how much oxygen one should give. The less the amount of gas given the better. With the nose piece the cyanosis in the infant is less marked. It is hard to determine what the effect of any method is, provided the baby does not require artificial respiration. If it is blue it cries immediately. It is very gratifying in cesarean sections to have the child cry at once. You can then dismiss the child from your mind and attend to the mother, a thing which you are not able to do always under ether anesthesia in cesarean section.

The Management of the Placental Stage of Labor, with Special Reference to Retained and Adherent Placenta

Dr. John O. Polak, Brooklyn: The placenta will separate spontaneously if the normal mechanism is allowed to obtain. Any manipulation of the uterus before the clinical evidences of separation are apparent will disturb this normal mechanism. Postpartum hemorrhage is best guarded against by the observance of the physiologic processes. Partial detachment, the result of manipulation, predisposes to bleeding. The normal mechanism of placental delivery is that described by Schultze. The Duncan mechanism occurs only in low implantations of the placenta or when manipulation has been untimely and vigorous. The placenta may be retained in the uterus for hours or days without danger to the patient, provided it is attached or completely detached, which insures that the bleeding will be negligible. Asepsis is dependent on the penetration of the uterus by the hand or instrument to infected passages, and not on the retention of the placenta. Manual extraction is admissible only in partial separation with hemorrhage. In retention of the placenta without hemorrhage, the cord should be cut off close to the cervix and the case watched until the time of separation is apparent, when the placenta may be expressed by Credé while the patient is under surgical anesthesia. Invasion of the uterus via the vagina is fraught with danger from infection, and on exploration, should the placenta not be found presenting at the internal os, infrapelvic delivery should be abandoned and delivery accomplished through sterile avenues by suprapubic extraperitoneal hysterotomy. When the adhesion is so great that its removal entails the digging out of the placenta piecemeal, excision of the placental site or hysterectomy should be the choice.

DISCUSSION

Dr. Walter P. Manton, Detroit: Implantation of the placenta is, as a rule, a good deal lower than is usually supposed. A number of years ago I found that in several hundred consecutive cases the implantation was a good deal lower than what is stated in the textbooks. The implantation is apt to be lateral rather than frontal or parietal; therefore I do not believe that the Schultze method of delivery of the placenta is the normal one, but that the Duncan method is.

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Primary Cancer of the Female Urethra: Plastic Work and Late Results

Dr. H. S. Crossen, St. Louis: To determine the proportion of cases of cancer cured by operation, I have tabulated the operative cases found in a cursory examination of the literanation suggested basal brain tumor and cord tumor. Several subcutaneous nodules led to a correct clinical diagnosis. Necropsy showed large neurofibromas in both cerebellopontile angles, large tumor of the cauda equina, numerous small tumors on various cranial and spinal nerves, and also tumors on nerve roots, in places invading the cord. There was a large tumor outside the rectum.

Abderhalden Reactions and Defective Mental and Physical States

Dr. S. D. W. Ludlum and Dr. E. P. Corson White, Philadelphia: In the blood of a thymectomized dog we obtained reactions to testis and pancreas, just as had previously been done in patients who had physiologic symptoms of thymectomy. Following this we saw three cases of backwardness in children in which the symptoms were those of lymphatism. These cases reacted to thymus. Results of treatment of these cases with pituitary extract were phenomenal. A girl of 5 years showing gigantism reacted to pituitary. The symptoms were controlled by thyroid extract. We have had ten cases of a hypomaniac state in adults pointing to hyperpituitarism rapidly controlled by the opposite hormone. A case of infantilism which reacted to thymus started to grow when put on pituitary extract.

DISCUSSION

Dr. Henry A. Cotton, Trenton, N. J.: This is the most important problem before the psychiatrist. The question of the influence of the ductless gland or the glands of internal secretion on mental conditions, probably more especially in dementia praecox, seems to be evident today. Following out Cushing's ideas on hypopituitarism, we examined a number of cases. We examined the blood pressure, sugar tolerance, the polyuria, and all of these cases have shown one thing, that there was evidence that the pituitary gland was at fault. There is probably a group of cases in which the thymus is affected, another in which the pituitary is affected and we know the effect the suprarenal and the other glands have. As these studies are developing we can at least look to some definite facts to be gotten out of this work to indicate a proper theory.

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Primary Cancer of the Female Urethra: Plastic Work and Late Results

Dr. H. S. Crossen, St. Louis: To determine the proportion of cases of cancer cured by operation, I have tabulated the operative cases found in a cursory examination of the literature as follows: cases subjected to radical operation, 25; cured (three years), 8; probable cures (two years), 3; recurrences, known, 8; results not known, 6. Of the treated cases, about half were cured. This is a very encouraging showing, considering the fact that lymphatic metastases take place directly in the deep glands within the pelvis. On account of the direction of the lymphatic drainage, the first metastases made recurrence certain, for the affected glands were beyond reach. Some of the operations were not very extensive, the operators removing only a half or two-thirds of the urethra. The large proportion of cures was probably due to the fact that in the urethra an area of irritation causes symptoms very early, and thus leads to investigation in diagnosis and radical treatment while the disease is still in a comparatively early stage.

DISCUSSION

Dr. Lewis S. McMurtry, Louisville: The chances for a radical operation being successful are endangered by the natural delay in making a diagnosis. I venture to say that nearly all cases reported have been primarily operated on as urethral caruncle, and the malignant character of the growth has been lost sight of until the patient has been under treatment for some time, and then failure of this treatment and extension of the growth have impressed the surgeon with its true character. If these cases were seen early and diagnosed promptly, the results from complete excision would be much better.

Dr. Frederick J. Taussig, St. Louis: Three months ago I removed a small nodule from the urethra of a woman, aged 53, and our pathologist examined it a long time before he made up his mind it was not malignant. The epithelial proliferations in the urethra closely simulate early cancer; probably a certain number of these cases that have been reported as cures were not really cancers.

Dr. Joseph Brettauer, New York: I have had one case of primary carcinoma of the urethra. It is exceedingly difficult, if not impossible, to differentiate between early carcinoma of the urethra and urethral caruncle. It is more guesswork than anything else.

Dr. Hiram N. Vineberg, New York: In one of my cases, the specimen was examined by two good pathologists, and both made a diagnosis of carcinoma. The woman is still free from recurrence, ten years after the operation.

Dr. Willis E. Ford, Utica: In a case in which the growth was as large as a walnut and obstructing the passage of urine, I removed the urethra to such an extent that I thought I left but little of it. The patient got retention of urine. The growth returned within six or eight months. Since that time I have seen half a dozen cases, and with the exception of primary cancer of the clitoris, I think it is the most rapidly fatal of all cancers.

Prolapsus of Uterus

Dr. Herman J. Boldt, New York: Before deciding on a particular operation, it is well to consider whether future offspring is desired by the patient or not. A simple vaginal hysterectomy for prolapse of the uterus should have no place in our work, since by it a vaginal descensus cannot be cured. I know of no operation which answers an equally good purpose as a ventral suspension by the round ligament *a là* Gilliam, combined with a plastic operation on the pelvic floor, but not with too much narrowing of the vaginal canal. If properly done, a permanent cure will result in 90 per cent. of the cases unless a subsequent pregnancy should undo the result of the operation. Patients who have a marked descensus, or partial or complete prolapsus, in whom no further offspring is expected, may be treated by a vaginal operation with the expectation of getting a good result. I prefer the radical vaginal fixation. The technic must necessarily vary with the individual case. In patients who have complete procidentia of the uterus and vagina, and where no further use of the vaginal canal is to be made, we can do a total extirpation of the uterus and vagina, columnizing the vaginal tract by circular sutures, an operation that is comparatively simple, and an absolute guarantee as to permanent results.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

May, XVII, No. 4, pp. 403-523

1 *Origin and Early Development of Posterior Lymph Heart in Chick. R. West, Princeton, N. J.
2 *Development of Thymus in Pig. J. A. Badertscher. Ithaca, N. Y.
3 Premature Obliteration of Sutures in Human Skull. L. Bolk, Amsterdam.

1. **Origin of Posterior Lymph Heart.**—The evidence found by West from the study of injected embryos indicates that the lymphatic plexus which later enters into the formation of the posterior lymph heart, arises by the confluence of independent mesenchymal spaces which connect secondarily with the veins, that these spaces are bounded at first by mesenchymal cells which later become flattened to form an endothelium, and that both in the endothelial lymphatic walls and the adjacent mesenchyme an active hemopoesis, the products of which reach the general circulation via the lymphatic plexus, is taking place.

2. **Development of Thymus.**—The lymphocytes first present in the thymus Badertscher found are all large lymphocytes and have migrated into it from the mesenchyme. The numerous small round cells of the thymus are formed by the repeated division of the large lymphocytes which thus become small, and also by their own proliferation. Judging from the source and structure of the small round cells they are small lymphocytes and are identical with the small lymphocytes of the blood. The thymus, therefore, may well be considered as a source of some of the small lymphocytes found in the circulating blood. The reticulum of the thymus is of epithelial origin and is formed passively by its meshes becoming filled with lymphocytes which further separate the nodal nuclei and thus greatly attenuate the protoplasmic processes of the syncytium. The Hassall's corpuscles are of epithelial origin. The free red blood cells and eosinophil cells found in both interlobular septa and the thymic lobules are derived from lymphocytes in situ.

Whether or not any of the erythrocytes formed in the thymus enter the circulating blood, Badertscher says, is difficult to determine in fixed material. Some of the free erythrocytes undoubtedly undergo degeneration and the products of disintegration of those existing in the form of eosinophil granules are taken up by the lymphocytes which thus become transformed into eosinophil leukocytes. The histogenesis of the thymus is divided into epochs each of which is characterized by more or less distinct development features. They are: 1. The purely epithelial epoch which extends from its origin as an outpocketing from the third pharyngeal pouch and the formation of the cervical vesicle to the appearance of the first lymphocytes in the thymus. 2. The epoch of lymphocyte infiltration and lymphocyte proliferation and the formation of the reticulum. 3. The epoch of the formation of red blood cells and the development of granular cells.

Arkansas Medical Society Journal, Little Rock

May, XI, No. 12, pp. 279-301

4 Relationship Between Venereal Diseases and Pelvic Surgery. W. A. Snodgrass, Little Rock.
5 Typhus Fever, Its Etiology and Methods of Its Prevention. J. F. Anderson, U. S. P. H. Service.
6 New Science of Keeping the Well—Well. O. Dowling, Shreveport, La.

Archives of Internal Medicine, Chicago

May, XV, No. 5, pp. 645-792, Part I

7 *Investigation of Potency of Tincture of Aconite. G. C. Robinson, St. Louis.
8 *Nuclear Digestion and Uric Acid Excretion in Case of Total Occlusion of Pancreatic Duct. D. W. Atchley, Baltimore.
9 *Secondary Hypertrophic Osteo-Arthropathy and Its Relation to Simple Club-Fingers. E. A. Locke, Boston.

10 Chronic Ulcerative Colitis with Polyps. J. H. Hewitt and W. T. Howard, Cleveland.
11 Use of Abderhalden Reaction with Normal and Pathologic Human Serums. E. L. Ross and H. D. Singer, Kankakee.
12 *Factors of Coagulation in Primary Pernicious Anemia. C. K. Drinker and S. H. Hurwitz, Boston.
13 Origin of Proteins of Nephritic Urine. A. L. Cameron and H. G. Wells, Chicago.
14 *Case of Mercury Nephritis. N. B. Foster, New York.
15 *Oculocardiac Reflex. S. A. Levine, Boston.
16 *Coarse Auricular Fibrillation in Man. A. W. Hewlett and F. N. Wilson, Ann Arbor, Mich.

7. Investigation of Potency of Tincture of Aconite.—Robinson's experience with tincture of aconite as a means of lowering the pulse rate was obtained in an attempt to influence the tachycardia of exophthalmic goiter. A study of this condition was undertaken on the hypothesis that the tachycardia resulted from a lack of balance between the cardiac accelerators and the vagi and that if the so-called vagus tone could be increased, the cardiac rate would diminish. The tincture of aconite was administered in five cases of exophthalmic goiter, three of which were moderately severe, while two were mild. All of the patients had enlarged thyroids and tremor, while exophthalmos was very marked in two, moderate in two and absent in one case. The pulse rate after several days' rest in bed ranged from 110 to 120 beats per minute in one case, from 90 to 100 in two, and from 85 to 95 in two cases. In order to ascertain any effect the tincture of aconite might have on the heart in these cases, the pulse rate was studied under various conditions, both before and during the administration of the drug. These conditions consisted of rest in bed immediately after a constant amount of moderate exercise, and after administration of full doses of atropin. It was found that very large doses of the tincture of aconite produced no subjective symptoms and no slowing of the heart rate. Doses of 10 c.c. (approximately 150 drops) were given six times a day. An attempt to augment the action of aconite by physostigmin was not successful.

Although the chemical assay showed that the tincture used did not fulfil the Pharmacopeial requirements as regards its aconitin content, the discrepancy was not sufficient to account for the impotency of the drug. The physiologic assay showed that the minimal lethal dose for guinea-pigs of a substance giving the chemical tests for aconitin contained in the tincture was at least forty-five times as large as that of crystalline aconitin, and that the alcohol of the tincture apparently played no rôle in diminishing the toxicity of the solution by decomposing the aconitin. This substance in the tincture can hardly, therefore, be considered identical with crystalline aconitin. Robinson believes that these facts emphasize the necessity of physiologic standardization of the tincture of aconite, which is not now required by the Pharmacopeia. Evidence was obtained that the maximal doses of the tincture of aconite rendered the ventricles more liable to spontaneous contractions, apparently increasing their irritability.

8. Nuclear Digestion and Uric Acid Excretion in Occlusion of Pancreatic Duct.—The results of Atchley's experiment prove that in the human being the digestion of nuclear material, the purin metabolism and the uric acid formation do not depend on the presence of the pancreatic secretion in the intestinal canal. This finding, together with the negative result of the test in this case, and in many other reported cases, Atchley says, definitely points out the worthlessness of the Schmidt nuclear test for pancreatic function.

9. Relation of Secondary Hypertrophic Osteo-Arthropathy to Simple Clubfingers.—Hypertrophic osteo-arthropathy is considered by Locke to be always a secondary disease. Among the primary diseases, pulmonary tuberculosis is probably the most important though rarely inducing the extreme degree of bone and joint changes seen with bronchiectasis. There is a very definite correspondence between the characteristic clinical course of the disease and the process in the bones. During the periods of exacerbation in the primary disease, the pain, tenderness and swelling in the soft parts are not only increased, but the process in the bones is also more active. On the other hand, during the quiescent periods associated with cure or relief of the condition responsible for the bone and joint changes, the process in the bones is stationary and in rare instances actual resorption takes place. The new subperiosteal bone, which is at first sharply marked off from the old shaft, later becomes (usually after a period of some years) a more compact, dense layer, closely fused with the underlying old bone. In the late stages of the most progressive type of cases there is evidence of wide-spread halisteresis in the affected long bones. Occasionally the process in the bones and joints once established may progress even after actual cure of the primary disease.

The ungual phalanges as a rule show proliferative changes. They consist mainly in an irregular burr-like expansion of the distal half. More rarely small osteophytes are found at the proximal ends near the line of the joint cartilage. The epiphyses of the affected long bones are to some extent always involved, but the new osseous tissue is much more irregular in in outline and the ossification is less complete. The proliferation in the long bones in advanced cases is more general than has been recognized, often affecting nearly the entire skeleton. Changes in the joints are a constant and important feature of the disease. While the early changes are confined largely to the periarticular tissues, in the later stages, erosion of the cartilage, lipping about the joint, and even a moderate degree of ankylosis are common lesions. A considerable percentage of cases of so-called hippocratic fingers show by means of roentgenogram early proliferative changes in the periosteum of some of the long bones of the forearms and lower legs of exactly the same type as seen in hypertrophic osteo-arthropathy. Locke says that simple clubbing of the fingers and secondary hypertrophic osteo-arthropathy should be considered as identical, the former representing an early stage of the latter.

12. Factors of Coagulation in Primary Pernicious Anemia.—The studies made by Drinker and Hurwitz seem to emphasize the following points: 1. Prothrombin is diminished slightly in all cases of pernicious anemia. 2. This diminution is not great and is unimportant if active regeneration is in progress 3. Antithrombin and fibrinogen are normal even in the presence of very low cell counts. 4. In one case in which there has been pronounced diminution in prothrombin, platelet counts have been strikingly low, and the picture throughout has been that of fairly complete aplasia.

14. Mercury Nephritis.—In the case of mercuric poisoning reported by Foster the patient lived forty-one days. The history presents some interesting departures from the common course of events in cases of this sort in which the duration of life is brief. Anuria was at no time a symptom, and when the amount of urine fell below normal this was adequately accounted for by a low ingestion of fluids. When the water intake was forced there was apparently a normal response in output. In contrast again with the usual picture are the convulsive seizures, muscular twitching and the toxic psychosis. Of those symptoms which are associated with uremia, there were observed in this case, besides the evidences of renal disease, epileptiform convulsions, muscular twitching and a psychosis of the usual toxic type. The necropsy disclosed, besides an eroded condition of the lower bowel and degenerative changes in the liver, a remarkable nephritis which was studied with care from many sections. The lesions found were those usually encountered in the kidney in cases of bichlorid (mercuric chlorid) poisoning.

15. Oculocardiac Reflex.—The material for Levine's study consisted of eight cases of tabes dorsalis, one case of taboparesis, five cases of syphilis which were nontabetic, nine cases of chronic endocarditis (having a normal rhythm), one case of chronic endocarditis with auricular fibrillation, five cases of lobar pneumonia, and one case of diabetes mellitus. The five nontabetic syphilitics included two cases of syphilis of the cerebrospinal meninges, one of syphilitic myelitis, one of syphilis of the heart, and one patient who has been observed during the secondary stage and who now suggests signs of early tabes. Levine states that the oculocardiac reflex (inhibition of the heart produced by ocular pressure) is a normal but variable reflex. Some individuals normally have a more active oculocardiac reflex than others, just as some have more active tendon and superficial reflexes. In fact, when the reflex is considered absent there is often a slight inhibition of the heart. The reflex was found to be generally absent in tabes dorsalis. The only tabetic who had a moderate oculocardiac reflex, had no pupillary reaction to light whatever. In tabetics there was no difference between the effects of pressure on the two eyes. In nontabetics there was a distinct difference. The right reflex had a slightly greater effect on auricular contraction.

In Levine's opinion ocular pressure affords a simple and safe method of obtaining reflex vagus inhibition of the heart. Inhibition of the heart by the oculocardiac reflex is much more profound and more frequently obtained than by pressure over the vagus nerves. The oculocardiac reflex is generally absent in tabes dorsalis, present in pneumonia, syphilis (nontabetic) and chronic valvular disease. The reflex was absent in one case of diabetes mellitus and also in one case of auricular fibrillation before digitalis treatment. It was present after digitalis was given. Right ocular pressure has a slightly greater effect on the rate of the heart than left. It may stop the heart for a long period of time, relatively speaking, the *P* waves are sometimes diminished in size and may become iso-electric. Occasionally the auriculoventricular interval is lengthened. Left ocular pressure has a much greater effect on the conduction mechanism of the heart than right. It may lengthen auriculoventricular conduction, cause partial heart block and result, possibly, in automatic ventricular rhythm. On two occasions inverted *P* waves were seen. The height of the *R* waves is sometimes increased, at other times diminished. Ectopic ventricular beats were twice observed. The *P* waves are often diminished in size, but occasionally are increased. Escaped ventricular beats were seen both during right and left ocular pressure. Pain, flushing of the face, and apnea during ocular pressure, are much less pronounced in tabetics than in nontabetics. The effects on the rate and on the rhythm of the heart produced by ocular pressures are not constant, differing in different individuals and in the same individual from time to time. The duration and the degree of pressure play an important part in the degree of inhibition.

16. **Coarse Auricular Fibrillation in Man.**—A case of continuous irregularity is reported by Hewlett and Wilson in which the venous curves were characterized by numerous very rapid and irregular waves produced by auricular activity. These waves bore no definite relationship to the auricular fluctuations of the galvanometer string. The authors believe the condition to be one of unusually coarse auricular fibrillation.

Boston Medical and Surgical Journal

May 27, CLXXII, No. 21, pp. 769-806

17 How Practicing Physician May Aid Department of Health. A. J. McLaughlin, Boston.
18 Hospital Efficiency from Standpoint of Efficiency Expert. F. B. Gilbreth, Providence, R. I:
19 Hospital Efficiency from Standpoint of Hospital Surgeon. R. L. Dickinson, Brooklyn.
20 Hospital Efficiency from Standpoint of Hospital Trustees. W. Wesselhoeft, Cambridge.
21 Responsibility of General Practitioner for Care and Supervision of Discharged Sanatorium Patient. J. B. Hawes, 2d, Boston.
22 Tuberculosis of Throat. A. C. Getchell, Worcester.

Indiana State Medical Association Journal, Fort Wayne

May, VIII, No. 5, pp. 225-276

23 Technic of Wassermann Reaction. B. Erdman, Indianapolis.
24 *Border-Land Topics in Ophthalmology and Otolaryngology. J. C. Beck, Chicago.
25 *Some Ocular Tumors and Their Lessons. F. C. Heath, Indianapolis.
26 *Effects of Light on Eye. W. F. Hughes, Indianapolis.

24 and 25. Abstracted in The Journal, Oct. 24, 1914, p. 1500.

26. Abstracted in The Journal, Oct. 31, 1914, p. 1603.

Journal of Cutaneous Diseases, New York

May, XXXIII, No. 5, pp. 343-436

27 Epidemic Alopecia in Small Areas, in Schools, Regiments, Etc. J. T. Bowen, Boston.
28 Case of Mycosis Fungoides, Limited to One Foot. F. E. Senear, Ann Arbor, Mich.
29 *Local Treatment of Hyperkeratotic Eczema of Palms and Soles. D. W. Montgomery and G. D. Culver, San Francisco.
30 Case of Pellagra in New York. G. M. MacKee, New York.
31 Metabolic Influence of Chlorids on Certain Dermatoses. M. L. Ravitch and S. A. Steinberg, Louisville.

29. **Treatment of Hyperkeratotic Eczema of Palms and Soles.**—The hands are exposed to injurious influences, such as rough weather, water, cleansing agents, chemical solutions and various traumatisms, and the feet are commonly encased in ill-fitting and deforming shoes, which produce callosities and breaking down of the arch, thereby increasing sweating of the soles and resulting in maceration of the keratotic, thick epithelium. In no other type of chronic eczema is local treatment more efficacious and more satisfactory says Montgomery and Culver than in hyperkeratotic eczema of the palms and soles.

Locally a plaster mull may be employed, containing 5 per cent. salicylic acid in soap plaster:

℞	Acidi salicylici	5 per cent.
	Emplastri saponis (Beiersdorf)	95 per cent.

This is applied on the fingers and covered with zinc oxid adhesive plaster, so as to intensify its action. This is changed once in twenty-four hours. Under its use the hard, concrete-like hyperkeratosis of the fingers melt down, and the skin becomes smooth and supple. This plaster can not be applied to the feet as it would crumple up in walking, but an ointment may be prepared of about 12 per cent. salicylic acid in equal parts of lanolin and petrolatum, as follows:

℞	Acidi salicylici	8.00 gm.
	Lanolin,	
	Petrolatum	āā 32.00 gm.
M.		

This is applied in the morning, so that in walking it will be massaged into the skin. A few days later, when the patient is able to resume work, an ointment composed of one part of mercury in ninety-nine parts of simple ointment is used.

℞	Hydrarg. salicylatis	1.00 gm.
	Ung. simplicis	99.00 gm.
M.		

A salve composed of 6 per cent. each of red oxid of mercury and camphor and 12 per cent. of white lead, in an ointment base composed of equal parts of lanolin and petrolatum, may be used as follows:

℞	Hydrarg. oxidi rubri,	
	Camphorae	āā 4.00 gm.
	Plumbi carbonatis	4.00 gm.
	Lanolin,	
	Petrolatum	āā 32.00 gm.
M.	Sig.: Well rubbed in, twice a day.	

In one case cited by Montgomery and Culver, after five weeks the daily applications were changed from the above to a lotion consisting of:

℞	Kali caustic	1.50 gm.
	Glycerin	50.00 gm.
	Spts. vini rect	50.00 gm.
	Aquae rosae	ad 150.00 gm.
M.	Sig.: Local use, twice a day, before using a salve; and a salve consisting of:	
℞	Hydrarg salicylatis	0.30 gm.
	Paraffin	5.00 gm.
	Petrolatum alb.	25.00 gm.
M.	Sig.: Rub in twice a day.	

Another patient sought treatment on account of a hyperkeratotic eczema of the fingers and right palm. He also had hyperidrosis, accompanied with light red erythema of both palms. A lotion was prescribed, consisting of:

℞	Liq. plumbi subacetatis	16.00 gm.
	Liq. carbonis detergentis	80.00 gm.
M.	Sig.: Two teaspoonfuls in pint of hot water as a lotion and apply as compresses for ten minutes, twice a day.	

There was also prescribed an ointment:

℞ Ichthyoli	1.60 gm.
Hydrarg. oxidi rubri	4.00 gm.
Camphorae	4.00 gm.
Plumbi carbonatis	8.00 gm.
Lanolin,	
Petrolatum	āā 32.00 gm.

M. Sig.: Rub well into the lesions twice a day, after soaking the hands in the lotion.

Some time after this, the liquor carbonis detergens was painted on in full strength once a day, and the above dilute lotion of liquor carbonate detergens and lead water was used only once a day, in the evening. The ointment was changed to one of:

℞ Emplastri plumbi,	
Petrolatum	āā 30.00 gm.

Melt together over a slow fire, stirring constantly and add:

Liq. cresol. com.	1.20 gm.

M. Sig.: Use on fingers twice a day.

Six weeks after beginning treatment his lesions had all disappeared. In a number of instances in which other applications have failed, resorcin, in less than 4 per cent. strength, has been found excellent.

℞ Resorcini	2.00 gm.
Glycerini	2.00 gm.
Zinci oxidi	7.50 gm.
Cerae albae	1.50 gm.
Adipis benzoatae	50.00 gm.

Dissolve the resorcin in heated glycerin. Melt together the wax and the lard, and add, while constantly stirring, the dissolved resorcin and the well-triturated oxid of zinc. Sig.: Rub in well, twice a day.

The official unguentum acidi borici often acts well; the white precipitate in 2 to 4 per cent. strength in an ointment, may, in some instances, be better than the salicylate of mercury as given in one of the above prescriptions. Some of the best results in treating eczema of the soles, and especially of the palms, have been obtained by Montgomery and Culver by the use of Roentgen rays, after all other lines of treatment have failed, for months or even years.

Lancet-Clinic, Cincinnati

May 8, CXIII, No. 19, pp. 505-532

32 Brief History of Antituberculosis Work in Cincinnati. S. E. Allen, Cincinnati.
33 Tuberculosis Problem of Cincinnati Today. C. Dinwiddie, Cincinnati.
34 Cincinnati Municipal Tuberculosis Program. P. P. Jacobs, New York.
35 Cincinnati Tuberculosis Program. R. G. Paterson, Columbus.
36 Coordination of Public and Private Effort in Antituberculosis Fight. J. H. Landis, Cincinnati.
37 Cincinnati Municipal Tuberculosis Committee Program from Standpoint of Practicing Physician. H. L. Woodward, Cincinnati.
38 Outline of Proposed Plan for Health Center. C. Dinwiddie, Cincinnati.
39 Cincinnati's Proposed Health Center—Statement. G. M. Kober, Washington, D. C.
40 Proposed Health Center. D. E. Robinson, Cincinnati.
41 Health Center as Opportunity for Fundamental Work. W. R. Wherry, Cincinnati.
42 Proposed Health Center from Standpoint of Practicing Physician. E. W. Mitchell, Cincinnati.
43 Health Center from Standpoint of Hospital. A. C. Bachmeyer, Cincinnati.
44 Proposed Cincinnati Health Center. R. G. Paterson, Columbus.
45 Year's Work in Cincinnati. P. P. Jacobs, New York.
46 Social Service and Administration in Antituberculosis Dispensary. H. K. Dunham, Cincinnati.
47 Medical Results in Antituberculosis Dispensary in 1914. J. L. Tuechter, Cincinnati.
48 Tuberculosis Work Among Jews of Cincinnati. M. B. Hexter, Cincinnati.
49 Cincinnati Tuberculosis Sanatorium. A. C. Bachmeyer, Cincinnati.

May 15, No. 20, pp. 533-560

50 Status of Cerebral Surgery. J. Ransohoff, Cincinnati.
51 *Conservative vs. Radical Treatment of Eclampsia. J. H. Carstens, Detroit.
52 Difficult Question of Physical Director. I. O. Allen, Metamora, Ind.
53 Fractures of Patella. C. D. Schaefer, Allentown, Pa.
54 Five Years' Work with Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax. M. E. Lapham, Highlands, N. C.

51. Abstracted in The Journal, Nov. 21, 1914, p. 1878.

Laryngoscope, St. Louis

April, XXV, No. 4, pp. 193-256

55 Obligations of Physician. R. E. Kane, St. Louis.
56 Responsibilities of Community. R. N. Baldwin, St. Louis.
57 Medical Cooperation. M. A. Goldstein, St. Louis.
58 Practical Demonstration with Pupils of Central Institute for Deaf. E. M. Hilliard, St. Louis.
59 Need of Properly Qualified Teachers for This Work. J. S. Morrison, Fulton.
60 External Operation of Frontal Sinus. R. H. Skillern, Philadelphia.
61 Blindness Incidental to External Ethmoidal Operation. H. Smith, New York.
62 Congenital Bony Occlusion of Right Nasal Coana. W. J. Thomasson, Newport, Ky.
63 Case of Nasopharyngeal Sarcoma and Two Cases of Nasopharyngeal Fibromata. H. Smith, New York.
64 Parenchymatous Glossitis following Submucous Resection of Septum. F. C. Raynor, Brooklyn.
65 Report on Connellan-King Diplococcus Infections of Throat. J. J. King, New York
66 Responsibility of Physician in Oral Infections. W. H. Haskin, New York.
67 Case of Primary Mastoiditis. H. Bonner and H. V. Dutrow, Dayton, O.

Medical Record, New York

May 29, LXXXVII, No. 22, pp. 883-924

68 Prognostic Significance of Changes in Retinal Vessels. A. Knapp, New York.
69 Studies of Atypical Children. W. B. Noyes, New York.
70 Cure of Goiter by Injection of Boiling Water into the Substance of Enlarged Thyroid. J. A. Wyeth, New York.
71 Importance of Early Recognition of Mental Limitations of Praecox Type. J. R. Ernst, Washington, D. C.
72 Novocain-Suprarenin Infiltration-Conduction Analgesia in Repair of Inguinal Hernia. I. Seff, New York.
73 Acid Crises. W. F. Dutton, Tulsa, Okla.
74 Psychogenic Convulsions. T. H. Ames and R. MacRobert, New York.
75 Humanized Milk in Infant Feeding. J. Epstein, New York.

New York Medical Journal

May 29, CI, No. 22, pp. 1089-1140

76 Blindness of Newborn. (To be continued.) H. P. De Forest, New York.
77 New Species in Human Family (Digitigrade). D. D. Ashley, New York.
78 Gastro-Intestinal Roentgenography in Trendelenburg Position. S. Tousey, New York.
79 Red Cross Problems in Time of War. C. S. Ford, Fort Leavenworth, Kan.
80 *Ectopic Gestation. H. C. Taylor, New York.
81 Surgical Treatment of Hyperthyroidism. J. B. Haeberlin, Chicago.
82 Visual Perception, Retention and Reproduction. A. Brav, Philadelphia.
83 Syphilis of Nervous System. F. J. Conzelmann, Winnebago, Wis.
84 Management of Septic Conditions in Abdominal Cavity. A. M. Willis, Richmond.

80. **Ectopic Gestation.**—Of the forty-four cases analyzed by Taylor, 76 per cent. gave a history of inflammation of the appendages, or it was discovered at the time of the operation. In 81 per cent. of the cases there was a history of irregularity in the menstrual bleeding. In 8.7 per cent. there was a history of amenorrhea lasting to the time of operation. In 69.6 per cent. of the cases of ruptured ectopic sac, the classical symptoms of acute localized sharp pain, with nausea, vomiting, and fainting were present. Of the unruptured cases 92.3 per cent. of the patients suffered from pain on the side of the diseased tube. The breasts were enlarged and tender in 44 per cent. of the cases and in 55 per cent. they showed no change. In the unruptured cases in the series, the average number of white blood cells was 8,670 with 73 per cent. polynuclear cells and 25 per cent. lymphocytes. Excluding the infected cases, the average white blood count was 14,430 and 83.7 per cent. polynuclear cells.

There were four deaths or a mortality rate of 8.7 per cent. Two of the deaths were in cases that had advanced beyond the fifth month. One patient died from shock and hemorrhage and the other from septicemia. Excluding the cases that ended fatally and those in which the operation precluded pregnancy, there were fourteen patients whose history in regard to subsequent pregnancies was obtained. Of these fourteen patients, three had subsequent normal pregnancies. One patient had three children, another two children, and the third had a miscarriage. In addition to these cases of normal pregnancy, there were four cases of 8.7 per cent. of subsequent extra-uterine gestation.

Oklahoma State Medical Association Journal, Muskogee

May, VII, No. 12, pp. 383-425

85 Hygienic Management of Children. S. P. Rawls, Altus.
86 Infant Feeding. C. Puckett, Pryor.
87 Summer Diarrhea of Children. J. W. Browning, Geary.
88 Our Society. E. Lamb, Clinton.
89 Pellagra. J. C. Watkins, Checotah.
90 Medical Conservation; Some Problems and Solutions. W. G. Little, Okmulgee.
91 Nephritis. B. H. Day, Oklahoma City.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

May, XXIII, No. 5, pp. 137-164

92 Treatment of Ischiorectal Abscess and Fistula *in Ano.* W. H. Stauffer, St. Louis.
93 Something New in Tonsil Surgery. W. F. Cole, Waco, Tex.

Surgery, Gynecology and Obstetrics, Chicago

May, XX, No. 5, pp. 501-630

94 Empyema of Thorax; Study of Two Hundred and Ninety-Nine Cases. A. O. Wilensky, New York.
95 *Ureteral Calculi; Special Means of Diagnosis and Newer Methods of Intravesical Treatment. J. T. Geraghty and F. Hinman, Baltimore.
96 *Spina Bifida; Tibial Transplant, Father to Child. H. H. Trout, Roanoke, Va.
97 Anuria Due to Unilateral Calculous Obstruction. L. Frank, Louisville, Ky.
98 Serologic Findings in One Hundred Cases, Bacteriologic Findings in Fifty Cases and Résumé of Six Hundred and Seventy-Nine Cases of Abortion at Michael Reese Hospital. J. E. Lackner, Chicago.
99 *Tumors of Mediastinum. W. D. Haines, Cincinnati.
100 *Periosteal Regeneration of Bone. F. D. Smith, Chicago.
101 *Case of Perforation of Juncture of Cystic and Common Ducts; Primary Suture—Recovery. V. A. Lapenta, Indianapolis.
102 Ether-Oil Colonic Anesthesia; Report of Thirty-Six Head and Neck Operations. J. E. Lumbard, New York.
103 Preliminary Report on Use of Percy Cautery in Carcinoma Uteri, With Especial Reference to Its Use as Forerunner to Wertheim Operation. S. M. D. Clark, New Orleans.
104 Occurrence of Nine-Millimeter Human Embryo in Margin of Full-Term Placenta. R. L. Moodie, Chicago.
105 Benign Bone-Cysts; Report of Four Cases. M. Skinner, Liverpool, England.
106 *Access to Deeper Orbit. W. Van Hook, Chicago.
107 Congenital Defects of Anus and Rectum. E. C. Brenner, New York.
108 Case of Mediastinal Thyroid Removed by Transsternal Mediastinotomy. H. Lilienthal, New York.
109 New Technic for Operations on Steno's Duct. H. Crouse, El Paso, Tex.
110 Operative Treatment of Retroversion of Uterus. J. G. Clark, Philadelphia.
111 History of Retrodisplacements of Uterus. H. A. Kelly, Baltimore.
112 Modification of Alexander Operation Through Pfannenstiel Incision. B. C. Hirst, Philadelphia.
113 Operative Treatment of Retroversion of Uterus. E. B. Cragin, New York.
114 Surgical Treatment of Retroversion of Uterus, with Special References to Lower Pole. J. W. Bovée, Washington, D. C.
115 Gilliam Operation for Deviations of Uterus. D. T. Gilliam, Columbus, O.
116 Principles and Practice in Surgical Treatment of Retrodisplacements of Uterus. J. C. Webster, Chicago.
117 Operative Treatment of Retrodisplacement of Uterus. E. E. Montgomery, Philadelphia.
118 Surgical Treatment of Retroversion of Uterus. J. M. Baldy, Philadelphia.
119 *Button Suture in Anterior Colporrhaphy. S. F. Wilcox, New York.
120 *Oil-Impregnated Drainage Tubing. S. W. McArthur, Chicago.

95. **Ureteral Calculi.**—The symptoms of ureteral calculus are not diagnostic and are insufficient to definitely determine either its presence or position except in rare instances. While roentgenography is the simplest and probably the most valuable single diagnostic method for the detection of ureteral calculi, even in the most expert hands, a surprisingly large percentage (22.4 per cent.) may be undetected by it. This large percentage of failures demands the employment of supplementary methods, before excluding stone with any degree of positiveness. By means of collargol ureterograms a calculus occasionally will be shown which the simple Roentgen ray failed to reveal.

In Geraghty and Hinman's experience the employment of the wax-tipped catheter is by far the most accurate method for the detection of ureteral calculi, and this method should be in more general use. In six out of thirty-six cases of ureteral calculi (20 per cent.) seen by the authors in the last two years, it has located a stone in which repeated roentgenograms were uniformly negative. Owing to the great frequency of extra-ureteral shadows in the region of the pelvic portion of the ureter, diagnosis of ureteral stone in this position cannot be accepted without confirmatory information. A considerable percentage of stones which enter the ureter pass spontaneously, and the discovery of a small calculus is not always an indication for immediate operative interference. Unless the stone is blocking completely or producing repeated and violent colic, simple manipulative methods should first be employed. For calculi beyond the juxtavesical portion, displacement with the ureteral catheter, injection of oil or the securing of relaxation of the ureteral wall by using the thermocatheter may, in certain cases, result in the expulsion of the stone. When the stone is in the vesical portion of the ureter, cystoscopic procedures should usually be successful. A study of the authors' cases, as well as different series reported in the literature, shows that a considerable proportion (14.3 per cent. G. and H.; 17 per cent. of 204 cases, Jeanbrau) of ureteral calculi are arrested in the intramural portion of the ureter, a portion which can be readily reached by cystoscopic methods.

96. **Spina Bifida; Tibial Transplant.**—An incision about 10 cm. long was made over the crest of the father's tibia and a rectangular piece of bone about 4 x 6 cm. and 2 mm. thick was removed by means of a circular saw, leaving the periosteum attached and extending over each side for about 1 cm. In this manner the medullary cavity of the tibia was not entered. The graft was immediately placed in a pan of warm normal saline solution and kept there for further use. The baby was etherized and a transverse elliptical incision made over the tumor so as to have the incision removed as far as possible from the anus. The sac was readily exposed and the dissection was quickly carried down to the cleft in the spine. This cleft was about 2 x 5 cm. and situated in the lumbosacral region. An opening was made in the fundus of the tumor, allowing about 300 c.c. of clear serum to escape. This exposure showed the various nerve-roots radiating over most of the sac, especially in the dorsomedian aspect. It was Trout's intention to trim around these nerve roots as is usually done, but each time he pinched or cut one of them with the scissors the child would stop breathing and become cyanotic. He then decided to close up the sac some distance from the ends of the nerve roots, which he did with a continuous plain catgut suture, and then shoved this collapsed tumor into the cleft somewhat after the manner of Schmidt, held it in this position, placed the bone graft removed from the father's tibia over it and anchored it by means of chromic catgut No. 0 sutures. These sutures were placed through the periosteum of the graft, the cartilage of the transverse and spinous processes and any other firm structure the curved needle would grasp. In order to prevent too much pressure on this collapsed sac the graft was bent like a bow and held in this position on all sides by sutures. The skin was sewed up with fine black silk, and silver foil, cotton and collodion dressing was applied. The result was entirely satisfactory.

99. Abstracted in The Journal, Jan. 17, 1915, p. 232.

100. **Periosteal Regeneration of Bone.**—Smith claims that periosteum stripped quickly and with a sharp periosteotome will produce bone in a greater percentage of cases if young animals are used than if fully developed adult animals are employed. Likewise a greater percentage of positive results will be obtained with periosteum which is stripped slowly and with an elevating action of the periosteotome than when the periosteum is quickly torn loose from the compact bone. A very large percentage of positive results can be obtained by using very young animals and small strips of periosteum. Fibrin is a very active stimulant to osteoblastic activity. These conclusions are drawn from considerable experimentation carried on at several different institutions, some under very adverse conditions and others under favorable circumstances. The experiments are not enumerated.

101. **Perforation at Juncture of Cystic and Common Ducts.**—The point emphasized by Lapenta is that a correct *diag-*

nosis was made from the peculiar coma the patient exhibited. The patient was found unconscious, temperature 94⅘, pulse 120, and respiration 40. Breathing was entirely thoracic. Very slight palpation in the region of the epigastrium quickly aroused the patient, causing unbearable pain. It was very clear that a perforation of the duodenum, stomach, or gall-ducts had occurred. No history of previous illness or attacks could be obtained from the patient. Questions were answered incoherently and unwillingly. Considering that there was no blood in vomiting but only a greenish acid liquid, and on the statement of a relative that the patient had never had any gastric disorders, and taking into consideration the comatose state of the patient, which Lapenta always regards in upper abdominal calamities as characteristic of common-duct trauma, he was led to diagnose the case as one of common-duct perforation. A perforation about 7 or 8 mm. in length was found below the juncture of the common duct, and a calculus was protruding from the rent. A cholecystostomy was performed to secure drainage and as an expectant measure for the probable development of a common-duct stricture, in order to afford immediate protection to the dying patient against a biliary obstruction. The recovery was uneventful, the patient being dismissed from the hospital completely cured after three weeks.

106. **Access to Deeper Orbit.**—The essential point in the method practiced by Van Hook is the free removal of the superciliary projection until the orbit is widely open. The author believes that by its use the extraction of the supraorbital nerve will be much facilitated and the results improved.

119. **Button Suture in Anterior Colporrhaphy.**—The operation devised by Wilcox is performed as follows: With the patient on the back and the perineum retracted, the cervix is caught with volsellum forceps and the anterior vaginal wall put on the stretch. A small opening is made through the vaginal mucous membrane just anterior to the cervix. Through this the blades of a pair of blunt-pointed scissors are introduced and worked up between the vaginal and cystic layers by alternately spreading and closing the blades until the two membranes are separated as far as the base of the urethra. Then the vaginal mucous membrane is split vertically and the lateral dissection may be carried as far as desired with the fingers or instruments. While the flaps are drawn taut, a curved needle armed with a double suture of ten-day chromicized gut on which an ordinary pearl shirt button is strung, is passed through from the base of one flap to the other. Three or more similar sutures are placed in the same manner. Then the second set of buttons are threaded on to the sutures and the flaps approximated. Only sufficient tension is made to hold the flaps in approximation without undue pressure. After the sutures are tied over the buttons, and cut off, the flaps are trimmed down until there is about a quarter of an inch of tissue projecting beyond the edges of the buttons. The edges of the flaps are then whipped together with a continuous suture of plain catgut. None of the sutures require removal and the buttons will come away in about two weeks.

120. **Oil-Impregnated Drainage Tubing.**—Attention is called by McArthur to the use of a properly prepared "oil-impregnated" rubber tube in postoperative drainage in localities in which a serofibrinous or hemorrhagic exudate is ordinarily expected during the first twenty-four to seventy-two hours. Suitable pieces of pure para gum tubing are boiled for a few minutes in weak soda solution, to remove traces of the surface sulphur, washed in clean water, dried, and then dry-sterilized in a steam autoclave. The tubing should be one-half the caliber and two-thirds the length of the desired end-results, because of the changed size subsequently induced by the oil. These tubes are then allowed to stand completely immersed in suitable jars of sterile "petrolatum liquidum," U. S. P., for not longer than one week at room temperature. At the end of this time they are removed from the oil with proper aseptic precautions, the excess of oil shaken off, and are preserved ready for use in normal salt solution containing 1:1,000 bichlorid.

Texas State Journal of Medicine, Fort Worth

May, XI, No. 1, pp. 1-70

121 Surgical Treatment of Puerperal Infection. C. J. Miller, New Orleans.
122 Puerperal Streptococcemia; Report of Two Cases. G. B. Foscue, Waco.
123 Preventive Gynecology—Burden of Obstetrics. W. C. Dickey, Memphis.
124 Prolapse of Uterus. J. S. McCelvey, Temple.
125 Placenta Praevia and Its Treatment. M. Swearingen, Honey Island.
126 Postoperative Hemorrhage of Fallopian Tubes. B. F. Smith, San Antonio.
127 Medical Aspect of Intestinal Toxemia. H. G. Walcott, Dallas.
128 Diagnosis of Intestinal Toxemia by Use of Roentgen Ray. J. M. Martin, Dallas.
129 Resume of Chemical Analysis of Stomach Contents in One Hundred Consecutive Cases of Indigestion. A. Woldert, Tyler.
130 Disorders of Stomach, with Reference to Disease in Other Viscera. R. A. Duncan. Graham.
131 Amebic Infection. F. D. Garrett, El Paso.
132 *Clinical Aspects of Bacillary Dysentery in Texas. J. G. Bryson, Bastrop.
133 Eye Injuries. J. M. Woodson, Temple.
134 Case of Blepharoplasty Undertaken to Cover an Eyeball Exposed for Fourteen Years. J. W. Thomason, Huntsville.
135 Tonsil as Chronic Infective Focus. H. B. Decherd, Dallas.
136 Some Clinical and Pathologic Findings of Tonsil. G. S. McReynolds and J. E. Robinson, Temple.
137 Flat Foot. L. A. Suggs, Fort Worth.
138 Psychotherapy. J. Greenwood, Houston.
139 *Report of Cases. J. B. Shelmire, Dallas.
140 *Instructions to Local Examiners.* W. A. King, San Antonio.
141 How To Fit Up Practical Clinical Laboratory. B. F. Smith, Jr., Galveston.
142 *Inoculation of Lupus Vulgaris with Streptococcus; Report of Case.* C. P. Brewer, Fort Worth.

132. **Bacillary Dysentery.**—Bryson calls attention to the fact that bacillary dysentery exists to a considerable extent in Texas, a locality not frequently mentioned in literature. Because of the fact that simple or catharrhal dysentery is so common and resembles bacillary dysentery so much during the first few days, Bryson always gives the following old prescription until at least twelve doses have been taken:

Tincture Opii (Deod.),
Ac. Sulph. Arom .... āā f℥i
Magnus Sulph .... ℥i
Syr. Zingib .... q. s. ad ℥vi
M. Sig.: Take tablespoonful in water every three hours. For adults, *children and infants, in proportion to age.*

When convinced that he is dealing with a case of bacillary dysentery, he stops the opiate and pushes the salines vigorously for the next few days, until the amount of mucus in the stool has been greatly reduced. Bismuth may be given in large doses after the active infection is over, as it may coat and heal the irritated bowel. After the bowel has been thoroughly cleansed with salines, and the diet regulated, elevate the patient's hips on the side of the bed, with an oil sheet or pad under him to drain the return flow into a vessel, and pass a sterilized soft rubber colon tube of medium size into the bowel very slowly, avoiding any force. If the tube meets with resistance, stop; and if the relaxation does not permit the tube to pass on, connect it with the syringe and let a small amount of the warm saline solution flow in, it will thus pass without any pain to the patient or injury to the inflamed bowel When passed well into the bowel, let the solution flow with gentle pressure, and when the patient complains of fulness and discomfort, he should be instructed to strain and expel the excess of the fluid, all the while it is flowing in from the syringe. Repeat this as often as indicated during the active inflammation. It is beneficial to use them every three or four days, gradually decreasing as the active inflammation subsides. Warm saturated solution of boric acid is just as safe, and in addition is a mild antiseptic and astringent. A solution of bichlorid of mercury, 1:4,000 or 1:5,000 may be used. The most effective application Bryson has used is a solution of silver nitrate, beginning with about 20 grains to the quart of sterile warm water, and increasing the strength to 40 grains to the quart.

139. **Report of Cases.**—The cases reported by Shelmire are the following: Orthoform dermatitis, multiple nonpigmented sarcoma, multiple neuritis from arsenic paste, xeroderma pigmentosum, leprosy and dermatitis venenata.

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Dublin Journal of Medical Science

May, III, No. 521, pp. 321-400

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Edinburgh Medical Journal

May, XIV, No. 5, pp. 321-408

17 *Pancreatic Infantilism. B. Bramwell.
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19 War and Psychiatry. I. Emslie.
20 Pulmonary and Intestinal Tuberculosis with Tuberculous Empyema, Tuberculous Septicemia and Terminal Intestinal Hemorrhage. J. Ritchie.

17. **Pancreatic Infantilism.**—In February, 1902, and March, 1904, Bramwell published the data of a case of infantilism associated with chronic diarrhea, in which the condition was due to defective or arrested pancreatic secretion, and in which the diarrhea was cured and the infantilism removed by the administration of pancreatic extract and by that means alone. Bramwell claimed then that the condition, pancreatic infantilism as he termed it, is a distinct clinical entity, a disease which had not hitherto been recognized and described. The characters of pancreatic infantilism are: arrested bodily and arrested sexual development; intelligence good, no mental defect; no deformity or structural defect of the bones; no visceral disease or derangement except chronic diarrhea, flatulent distention of the abdomen, and defective or arrested pancreatic secretion. The defective or arrested pancreatic secretion Bramwell believes to be due probably to chronic pancreatitis. In some cases the condition (chronic diarrhea and infantilism) is completely cured by the administration of pancreatic extract and by that treatment alone.

The author details the after-history of his case and refers to other cases which have been recorded since he directed attention to the condition. For the past ten years his patient has enjoyed excellent health (with the exception of an attack of dyspepsia, due to errors in diet, during March and April, 1914), and has been regularly at work as a tailor. During the past nine years his bowels have been very regular; he has, as a rule, one motion a day, seldom two; the motions are always formed and natural. Before the pancreatic treatment was commenced there were, on an average, 5 or 6 loose motions daily. Before the treatment the patient had not grown at all for eight years. After the treatment he gradually commenced to grow. He now measures 5 feet 3 inches and weighs 7 stone 13 pounds (101 pounds), an increase of 10⅞ inches in height and 3 stone 5½ pounds (47½ pounds) in weight. The sexual development, which when the patient came under observation was quite infantile, gradually become complete. The patient lost his child-like appearance; his voice, which was high pitched and childish, became low toned and rough.

Glasgow Medical Journal

May, LXXXIII, No. 5, pp. 321-399

21 Preventive and Curative Treatment of Pneumococcal Ulcer of Cornea. A. M. Ramsay.
22 Prognosis and Treatment of Congenital Syphilis, with Plea for Notification. L. Findlay and M. E. Robertson.
23 Chorea. (To be continued.) I. MacKenzie.

Indian Medical Gazette, Calcutta

April, L, No. 4, pp. 121-160

24 Pyorrhea Alveolaris as Streptococcal and Amebic Disease and Its Treatment by Vaccine and Emetin. L. Rogers.
25 Inoculation Against Plague and Pneumonia and Experimental Study of Therapeutic Methods. W. M. Haffkine.
26 Studies in Malaria. H. Stott.
27 Macrostoma Found in Human Intestinal Contents. G. C. Chatterjee.
28 Co-Relation of Ductless Glands and Onset of Labor. F. Barnardo.
29 Case of Excision of Upper Jaw for Sarcoma Performed at Sree Sree Sree Bir Hospital, Nepal (Khatmundu). S. C. Das Gupta.

Journal of Tropical Medicine and Hygiene, London

May 1, XVIII, No. 9, pp. 97-108

30 Meteorology of Malaria. M. D. O'Connell.
31 Atrophodermia Biotriptica in Natives in Anglo-Egyptian Sudan. A. J. Chalmers and C. M. Drew.

Lancet, London

May 15, I, No. 4785, pp. 1009-1064

32 Some Infections of Tonsils. (To be continued.) F. C. Pybus.
33 Case of Perithelioma of Superior Maxilla and Ethmoid. G. H. L. Whale.
34 *Spinal Anesthesia (Novocain) in Forty-Three Suprapubic Prostatectomies. H. M. Page.
35 *Tuberculin Administration and Graduated Labor. E. Taunton.
36 Report of Cases Illustrating Removal of Foreign Bodies on Roentgen-Ray Table. J. R. Caldwell.
37 *Chemistry of Rice-Polishings. H. Fraser and A. T. Stanton.
38 Bolt for Treatment of Fractures. C. Wallace.
39 Shell Wound of Left Shoulder; Extraction of Fragment from Neck. J. B. Haycraft.
40 Case of Intestinal Obstruction Due to Gallstone. A. R. Neligan.

34. **Spinal Anesthesia in Suprapubic Prostatectomy.**—In the cases reported by Page no failure to obtain muscular relaxation or analgesia occurred. Anesthesia, though slow to appear in three cases, was perfect eventually in 41 cases out of the 43; in the 2 others there were muscular relaxation and analgesia of the bladder. Thirty-four of the cases were operated on without any general anesthesia. Nitrous

oxid and oxygen were given to 4 patients for prevention of mental shock, the spinal anesthesia being perfectly good. In 3 patients a little general anesthesia was given during the skin incision, after which it was withdrawn and no more given. These 3 patients were completely conscious when the skin was being stitched up at the end of the operation. The skin was then completely insensitive; therefore they were cases in which the anesthesia came on more slowly than usual. In two other patients a little general anesthetic was given during the skin incision and stitching up only, none being given during the opening of the bladder or enucleation, muscular relaxation and bladder analgesia being present. Two patients died. One at the time of operation was suffering from uremia. He recovered normally from his spinal paralysis and was no worse at the end of the operation than before and remained no worse for two days, when vomiting and diarrhea came on. The second recovered normally from the spinal injection and operation. Did perfectly well for ten days, when an attack of acute lobar pneumonia came on and he died in a few days.

35. **Tuberculin Administration and Graduated Labor.**—Patients admitted to the Royal National Hospital, Ventnor, undergo the ordinary open-air sanatorium treatment with rest or systematically graded exercise according to the state of the case. A part of the accommodation of the hospital (about a fourth) is, however, set apart for prolonged treatment of selected cases by a course of graduated labor. After selection these patients are on probation for a period of not less than four weeks, and if that term is passed satisfactorily they are taken in as "workers" to the special working blocks, in which they remain until they leave the hospital. Tuberculin has been carefully administered in some of the most promising of these selected "workers" by the intensive method, either "B. E." or "T. R." Slight reactions were occasionally observed. In the rare cases of prolonged reaction the use of tuberculin was discontinued.

As the result of inquiries sent by Taunton to all of the 300 patients whose cases are under consideration, 189 returns were sent in—61.6 per cent. of the cases treated with tuberculin ("T." cases), and 63.2 per cent. of those treated without it ("N. T." cases). The deaths recorded were not markedly different in the "T." and in the "N. T." groups, namely, 8.3 per cent. for both in women and 12.8 per cent. "N. T." men and 16 per cent. "T." men. Among the "N. T." cases 79.1 per cent. of women and 71.1 per cent. of the men were reported as able to do their work, while of the "T." cases only 50 per cent. of the women and 56 per cent. of the men could do so. To put it another way, adding together the men and women, while of the "N. T." cases 26.9 per cent. were unfit for work or were dead, of the "T." cases 46.9 per cent. were so conditioned.

It was apparent that the administration of tuberculin to selected phthisic workers does not shorten, but, on the contrary, it lengthens, the duration of treatment. The use of tuberculin does not increase the ability to do work. It appears not only to delay the improvement in working ability, but it also diminishes the ultimate ability achieved by a more prolonged course of treatment. So far as gain in weight and the rate of gain enable one to judge, the administration of tuberculin is detrimental to the nutrition of patients to whom it is given under these conditions. The after results in fitting patients to do their work after leaving the hospital in these cases are less favorable in cases in which the tuberculin has been used than in the cases in which it has not.

37. **Chemistry of Rice Polishings.**—Polishings were extracted by Fraser and Stanton twice with six times their volume of 0.3 per cent. hydrochloric acid. The polishings after extraction were tested and found valueless. Alcohol was added to the extract so as to bring the mixture up to the strength of proof spirit. The precipitate, which consisted of phytin, was rejected. The filtrate was nearly neutralized, concentrated at a low temperature, and its volume so adjusted that 30 c.c. contained the material soluble in proof spirit from 5 gm. of polishings. Eighteen fowls were fed on polished rice and received once daily 30 c.c. of this solution. Their health was unimpaired. Another lot of polishings was extracted in the same way and alcohol added to the extract as before. To the proof-spirit filtrate sodium hydrate was added so as to make a solution containing 0.3 per cent. of that substance. The precipitate was collected, and the amount of it obtained from 5 gm. of polishings was given once daily to each of six fowls fed on polished rice. The filtrate was neutralized and evaporated at a low temperature until free from alcohol. The volume of the solution was then adjusted, so that 30 c.c. represented the nonalkali precipitable material from 5 gm. of polishings. Each of six fowls on polished rice received 30 c.c. of this solution once daily.

The fowls in neither of these two groups did well and most of them lost weight rapidly. On further examination it was found that 0.3 per cent. of sodium hydrate did not effect complete precipitation. From this it was inferred that the active substance was either separated into two parts or that it has been decomposed by the alkali. It was found that by making the proof spirit alkaline to the extent of 0.5 per cent. sodium hydrate, precipitation was complete. An experiment was then carried out in which fowls on polished rice received daily the alkaline precipitate obtained in this way from 5 gm. of polishings. It soon become apparent that the fowls were not doing well and the occurrence of polyneuritis ended the experiment. In view of the preceding results it was unnecessary to carry out an experiment with the alkaline filtrate. The inference from these experiments was that sodium hydrate in weak solution destroyed the active substance. The authors conclude that they have failed to isolate the curative substance which occurs in rice polishings. It is apparently decomposed during the fractionation and all trace of it is lost. The existence of "vitamin" in the sense that Funk employed that word is therefore disproved.

Annales de Gynécologie et d'Obstétrique, Paris

August, 1914, to April, 1915, XLI, No. 8, pp. 433-480

41 *Premature Separation of the Placenta, and Eclampsia. E. Zarate (Buenos Aires).
42 War Babies. (L'avortement est-il autorisé dans certaines circonstances en dehors des indications d'ordre médical?) H. Hartmann.

41. **Eclampsia with Premature Separation of the Placenta.**—Zarate gives a colored plate showing the "apoplexy" of the uterus and placenta in one of the two recent cases he reports. The eclampsia was very severe in one case but there were only mild and brief convulsions in the other. Both cases terminated fatally for mother and child. In both there was fulminating hemorrhage, absolutely uncontrollable. An emergency hysterectomy was done in one case but the woman died on the table. In the two cases reported here, the premature separation occurred during or just after one of the convulsions. Essen Möller encountered this association of eclampsia and premature separation of the placenta in two of his twenty-nine cases of eclampsia, and Zarate found records of two in twenty-five cases at the clinic for women at Buenos Aires.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

March, IV, No. 3, pp. 97-144

43 *Undulant (Malta) Fever in Relation to Pregnancy and the Puerperium. A. Laffont.

April, No. 4, pp. 145-176

44 *Spontaneous and Traumatic Ruptures of the Dura Mater During Delivery. (Ruptures de la dure-mère cranienne chez les nouveau-nés.) S. F. M. Moreno.
45 Ovarian Fibromas; Two Cases. Metzger and de Kervily.

43. **Relations Between Malta Fever and Gestation.**—Laffont concludes from his personal experience with two cases and analysis of thirty cases he quotes with much detail from the literature, that the ordinary treatment for Malta or Mediterranean fever should be applied regardless of the pregnancy. The only cases in which the pregnancy was artificially interrupted are not encouraging, and Bossi's theories as to the advantage of emptying the uterus as a routine measure in acute infections do not seem to be confirmed by the facts. His

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19 War and Psychiatry. I. Emslie.
20 Pulmonary and Intestinal Tuberculosis with Tuberculous Empyema, Tuberculous Septicemia and Terminal Intestinal Hemorrhage. J. Ritchie.

17. **Pancreatic Infantilism.**—In February, 1902, and March, 1904, Bramwell published the data of a case of infantilism associated with chronic diarrhea, in which the condition was due to defective or arrested pancreatic secretion, and in which the diarrhea was cured and the infantilism removed by the administration of pancreatic extract and by that means alone. Bramwell claimed then that the condition, pancreatic infantilism as he termed it, is a distinct clinical entity, a disease which had not hitherto been recognized and described. The characters of pancreatic infantilism are: arrested bodily and arrested sexual development; intelligence good, no mental defect; no deformity or structural defect of the bones; no visceral disease or derangement except chronic diarrhea, flatulent distention of the abdomen, and defective or arrested pancreatic secretion. The defective or arrested pancreatic secretion Bramwell believes to be due probably to chronic pancreatitis. In some cases the condition (chronic *diarrhea and infantilism) is completely cured by the administration* of pancreatic extract and by that treatment alone.

The author details the after-history of his case and refers to other cases which have been recorded since he directed attention to the condition. For the past ten years his patient has enjoyed excellent health (with the exception of an attack of dyspepsia, due to errors in diet, during March and April, 1914), and has been regularly at work as a tailor. During the past nine years his bowels have been very regular; he has, as a rule, one motion a day, seldom two; the motions are always formed and natural. Before the pancreatic treatment was commenced there were, on an average, 5 or 6 loose motions daily. Before the treatment the patient had not grown at all for eight years. After the treatment he gradually commenced to grow. He now measures 5 feet 3 inches and weighs 7 stone 13 pounds (101 pounds), an increase of 10⅞ inches in height and 3 stone 5½ pounds (47½ pounds) in weight. The sexual development, which when the patient came under observation was quite infantile, gradually become complete. The patient lost his child-like appearance; his voice, which was high pitched and childish, became low toned and rough.

Glasgow Medical Journal

May, LXXXIII, No. 5, pp. 321-399

21 Preventive and Curative Treatment of Pneumococcal Ulcer of Cornea. A. M. Ramsay.
22 Prognosis and Treatment of Congenital Syphilis, with Plea for Notification. L. Findlay and M. E. Robertson.
23 Chorea. (To be continued.) I. MacKenzie.

Indian Medical Gazette, Calcutta

April, L, No. 4, pp. 121-160

24 Pyorrhea Alveolaris as Streptococcal and Amebic Disease and Its Treatment by Vaccine and Emetin. L. Rogers.
25 Inoculation Against Plague and Pneumonia and Experimental Study of Therapeutic Methods. W. M. Haffkine.
26 Studies in Malaria. H. Stott.
27 Macrostoma Found in Human Intestinal Contents. G. C. Chatterjee.
28 Co-Relation of Ductless Glands and Onset of Labor. F. Barnardo.
29 Case of Excision of Upper Jaw for Sarcoma Performed at Sree Sree Sree Bir Hospital, Nepal (Khatmundu). S. C. Das Gupta.

Journal of Tropical Medicine and Hygiene, London

May 1, XVIII, No. 9, pp. 97-108

30 Meteorology of Malaria. M. D. O'Connell.
31 Atrophodermia Biotriptica in Natives in Anglo-Egyptian Sudan. A. J. Chalmers and C. M. Drew.

Lancet, London

May 15, I, No. 4785, pp. 1009-1064

32 Some Infections of Tonsils. (To be continued.) F. C. Pybus.
33 Case of Perithelioma of Superior Maxilla and Ethmoid. G. H. L. Whale.
34 *Spinal Anesthesia (Novocain) in Forty-Three Suprapubic Prostatectomies. H. M. Page.
35 *Tuberculin Administration and Graduated Labor. E. Taunton.
36 Report of Cases Illustrating Removal of Foreign Bodies on Roentgen-Ray Table. J. R. Caldwell.
37 *Chemistry of Rice-Polishings. H. Fraser and A. T. Stanton.
38 Bolt for Treatment of Fractures. C. Wallace.
39 Shell Wound of Left Shoulder; Extraction of Fragment from Neck. J. B. Haycraft.
40 Case of Intestinal Obstruction Due to Gallstone. A. R. Neligan.

34. **Spinal Anesthesia in Suprapubic Prostatectomy.**—In the cases reported by Page no failure to obtain muscular relaxation or analgesia occurred. Anesthesia, though slow to appear in three cases, was perfect eventually in 41 cases out of the 43; in the 2 others there were muscular relaxation and analgesia of the bladder. Thirty-four of the cases were operated on without any general anesthesia. Nitrous

oxid and oxygen were given to 4 patients for prevention of mental shock, the spinal anesthesia being perfectly good. In 3 patients a little general anesthesia was given during the skin incision, after which it was withdrawn and no more given. These 3 patients were completely conscious when the skin was being stitched up at the end of the operation. The skin was then completely insensitive; therefore they were cases in which the anesthesia came on more slowly than usual. In two other patients a little general anesthetic was given during the skin incision and stitching up only, none being given during the opening of the bladder or enucleation, muscular relaxation and bladder analgesia being present. Two patients died. One at the time of operation was suffering from uremia. He recovered normally from his spinal paralysis and was no worse at the end of the operation than before and remained no worse for two days, when vomiting and diarrhea came on. The second recovered normally from the spinal injection and operation. Did perfectly well for ten days, when an attack of acute lobar pneumonia came on and he died in a few days.

35. **Tuberculin Administration and Graduated Labor.**—Patients admitted to the Royal National Hospital, Ventnor, undergo the ordinary open-air sanatorium treatment with rest or systematically graded exercise according to the state of the case. A part of the accommodation of the hospital (about a fourth) is, however, set apart for prolonged treatment of selected cases by a course of graduated labor. After selection these patients are on probation for a period of not less than four weeks, and if that term is passed satisfactorily they are taken in as "workers" to the special working blocks, in which they remain until they leave the hospital. Tuberculin has been carefully administered in some of the most promising of these selected "workers" by the intensive method, either "B. E." or "T. R." Slight reactions were occasionally observed. In the rare cases of prolonged reaction the use of tuberculin was discontinued.

As the result of inquiries sent by Taunton to all of the 300 patients whose cases are under consideration, 189 returns were sent in—61.6 per cent. of the cases treated with tuberculin ("T." cases), and 63.2 per cent. of those treated without it ("N. T." cases). The deaths recorded were not markedly different in the "T." and in the "N. T." groups, namely, 8.3 per cent. for both in women and 12.8 per cent. "N. T." men and 16 per cent. "T." men. Among the "N. T." cases 79.1 per cent. of women and 71.1 per cent. of the men were reported as able to do their work, while of the "T." cases only 50 per cent. of the women and 56 per cent. of the men could do so. To put it another way, adding together the men and women, while of the "N. T." cases 26.9 per cent. were unfit for work or were dead, of the "T." cases 46.9 per cent. were so conditioned.

It was apparent that the administration of tuberculin to selected phthisic workers does not shorten, but, on the contrary, it lengthens, the duration of treatment. The use of tuberculin does not increase the ability to do work. It appears not only to delay the improvement in working ability, but it also diminishes the ultimate ability achieved by a more prolonged course of treatment. So far as gain in weight and the rate of gain enable one to judge, the administration of tuberculin is detrimental to the nutrition of patients to whom it is given under these conditions. The after results in fitting patients to do their work after leaving the hospital in these cases are less favorable in cases in which the tuberculin has been used than in the cases in which it has not.

37. **Chemistry of Rice Polishings.**—Polishings were extracted by Fraser and Stanton twice with six times their volume of 0.3 per cent. hydrochloric acid. The polishings after extraction were tested and found valueless. Alcohol was added to the extract so as to bring the mixture up to the strength of proof spirit. The precipitate, which consisted of phytin, was rejected. The filtrate was nearly neutralized, concentrated at a low temperature, and its volume so adjusted that 30 c.c. contained the material soluble in proof spirit from 5 gm. of polishings. Eighteen fowls were fed on polished rice and received once daily 30 c.c. of this solution. Their health was unimpaired. Another lot of polishings was extracted in the same way and alcohol added to the extract as before. To the proof-spirit filtrate sodium hydrate was added so as to make a solution containing 0.3 per cent. of that substance. The precipitate was collected, and the amount of it obtained from 5 gm. of polishings was given once daily to each of six fowls fed on polished rice. The filtrate was neutralized and evaporated at a low temperature until free from alcohol. The volume of the solution was then adjusted, so that 30 c.c. represented the nonalkali precipitable material from 5 gm. of polishings. Each of six fowls on polished rice received 30 c.c. of this solution once daily.

The fowls in neither of these two groups did well and most of them lost weight rapidly. On further examination it was found that 0.3 per cent. of sodium hydrate did not effect complete precipitation. From this it was inferred that the active substance was either separated into two parts or that it has been decomposed by the alkali. It was found that by making the proof spirit alkaline to the extent of 0.5 per cent. sodium hydrate, precipitation was complete. An experiment was then carried out in which fowls on polished rice received daily the alkaline precipitate obtained in this way from 5 gm. of polishings. It soon become apparent that the fowls were not doing well and the occurrence of polyneuritis ended the experiment. In view of the preceding results it was unnecessary to carry out an experiment with the alkaline filtrate. The inference from these experiments was that sodium hydrate in weak solution destroyed the active substance. The authors conclude that they have failed to isolate the curative substance which occurs in rice polishings. It is apparently decomposed during the fractionation and all trace of it is lost. The existence of "vitamin" in the sense that Funk employed that word is therefore disproved.

Annales de Gynécologie et d'Obstétrique, Paris

August, 1914, to April, 1915, XLI, No. 8, pp. 433-480

41 *Premature Separation of the Placenta, and Eclampsia. E. Zarate (Buenos Aires).
42 War Babies. (L'avortement est-il autorisé dans certaines circonstances en dehors des indications d'ordre médical?) H. Hartmann.

41. **Eclampsia with Premature Separation of the Placenta.**—Zarate gives a colored plate showing the "apoplexy" of the uterus and placenta in one of the two recent cases he reports. The eclampsia was very severe in one case but there were only mild and brief convulsions in the other. Both cases terminated fatally for mother and child. In both there was fulminating hemorrhage, absolutely uncontrollable. An emergency hysterectomy was done in one case but the woman died on the table. In the two cases reported here, the premature separation occurred during or just after one of the convulsions. Essen Möller encountered this association of eclampsia and premature separation of the placenta in two of his twenty-nine cases of eclampsia, and Zarate found records of two in twenty-five cases at the clinic for women at Buenos Aires.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

March, IV, No. 3, pp. 97-144

43 *Undulant (Malta) Fever in Relation to Pregnancy and the Puerperium. A. Laffont.

April, No. 4, pp. 145-176

44 *Spontaneous and Traumatic Ruptures of the Dura Mater During Delivery. (Ruptures de la dure-mère cranienne chez les nouveau-nés.) S. F. M. Moreno.
45 Ovarian Fibromas; Two Cases. Metzger and de Kervily.

43. **Relations Between Malta Fever and Gestation.**—Laffont concludes from his personal experience with two cases and analysis of thirty cases he quotes with much detail from the literature, that the ordinary treatment for Malta or Mediterranean fever should be applied regardless of the pregnancy. The only cases in which the pregnancy was artificially interrupted are not encouraging, and Bossi's theories as to the advantage of emptying the uterus as a routine measure in acute infections do not seem to be confirmed by the facts. His

reason for recommending this is the assumption that recently delivered women are peculiarly resistant to infections in general. Laffont advises against lactation, however, especially when the disease is of recent date. The micrococcus is found frequently and over a long period in the vagina, and pains, inflammation and hemorrhage are not uncommon during the course of the disease. Abortion and premature delivery are frequent; the germ seems to be able to traverse the placenta, and the children born at term are almost always weak and many of them succumb. The disease may develop at any stage of a pregnancy and the stress of childbirth may rouse the hitherto latent disease. In this latter case it is likely to be mistaken for ordinary puerperal fever. The micrococci are apt to swarm in breast milk.

44. **Rupture of the Dura Mater During Delivery.**—Moreno examined postmortem the brain of 40 newly born children at Buenos Aires, and in 10 cases he found that the tentorium had been lacerated, with rupture of the falx in 5. Thus, in fully 25 per cent. of the children dying at or soon after birth, the dura mater had been ruptured. This represents 1 in every 105 deliveries at the maternity. He reproduced the rupture experimentally in other infant cadavers by pressure on the sides of the head and describes the mechanism involved. Pressure on the sides of the head is liable with abnormally small pelves, especially if delivery is protracted. In two cases in which the hemorrhage from the rupture was apparently the sole cause of death, the pelvis diameter was 9 and 9.3 cm. Instrumental delivery is most dangerous with the after-coming head.

Bulletin de l'Académie de Médecine, Paris

April 27, LXXIII, No. 17, pp. 183-525

46 *Advantages of Arresting the Circulation in the Lateral Sinus (instead of ligating the jugular vein) in Operations on the Upper Part of the Neck and Base of the Skull. M. Lannois and M. Patel.
47 Paratyphoid Bacillus Isolated from the Blood Apparently a Transitional Form Between Types A and B. Daumézon.
48 The Electromagnet in Locating and Aiding in Extracting Foreign Bodies in the Tissues. J. Bergonié.
49 *Rice Flour for Bread Making. (Utilisation de la farine de riz dans la fabrication du pain.) Maurel.

46. **Compression of Lateral Sinus.**—Lannois and Patel report five cases which apparently demonstrate that it is possible to arrest the circulation in the lateral sinus without harm, after ligation of the arteries, in operations on the upper part of the neck and base of the skull. The jugular vein flattens out at once. The sinus becomes permanently obliterated by clots if the compression is kept up for several days. The measure thus wards off both primary and secondary hemorrhage after wounds in this region, and permits operations for arteriovenous aneurysms and removal of foreign bodies.

49. Summarized in Paris letter, May 22, p. 1777.

Presse Médicale, Paris

April 29, XXIII, No. 18, pp. 137-144

50 Traumatic Arterial Thrombosis with Gangrene of the Limb. (Ischémie et nécrobiose des membres par thrombose artérielle traumatique.) R. Grégoire.
51 Extraction of Bullets and Scraps of Shells with Aid of Roentgenoscopic Table. (Extraction des projectiles de guerre par la méthode de la table radioscopique.) L. Bérard.
52 Importance of Electric Treatment of Functional Paralysis in the Wounded. (Traitement des impotences fonctionelles consécutives aux blessures de guerre.) E.-J. Hirtz.
53 Psychoneuroses in Soldiers. (Troubles nerveux psychiques de guerre.) G. Roussy.
54 *Subcutaneous Injections of Oxygen; Dosage and Technic. R. Bayeux.

54. **Oxygenation of the Body by the Subcutaneous Route.**—Bayeux extols the advantages of subcutaneous injection of oxygen in treatment of gas gangrene, of chronic suppuration and in infected wounds of the chest and bones, citing various authors who have reported experiences in each of these lines. He has been successful himself in treating hemarthrosis and hydrarthrosis by turning a jet of oxygen into the joint until considerable pressure is exerted within. By this means he has cured in wounded soldiers, in a few days, effusions in the knees that had resisted all other treatment for months. An illustrated description is given of the apparatus he has been using for five years for subcutaneous injections of oxygen, permitting measurement and exact control of the inflow. The thighs and the buttocks are the best points for the injections, and if the inflow is kept below 30 c.c. to the minute the injection is not painful as a rule, although some patients feel discomfort if more than 10 or 20 c.c. per minute is allowed. About 250 c.c. is the average dose, but in acute asphyxia a liter or more might be injected in the emergency. In some cases of asphyxia from a poisonous gas, several liters have been thus injected at once. On the other hand, favorable results have been attained with only 100, 150 or 200 c.c. in persons particularly susceptible to the action of the oxygen. The gas is absorbed most rapidly in asphyxia, and two injections a day might be given. In chronic poisoning, anemia and infections, an interval of two or three days is advisable. In some cases the injections have been kept up for several months, with apparently constant benefit. He punctures the joint and plays the oxygen jet in it until the effusion is eliminated, then injects enough of the oxygen to inflate the synovial membrane. He injects at the rate of 70 c.c. to the minute until the intra-articular pressure reaches 70 cm. (water). He has experimented with intravenous injections of oxygen, but this is still in the tentative stage and he does not advise it.

Berliner klinische Wochenschrift

April 26, LII, No. 17, pp. 425-452

55 Intratracheal Insufflation and Other Means for Artificial Respiration. S. J. Meltzer (New York).
56 The Functions of the Thyroid. (Zur Theorie der Schilddrüsenfunktion und der thyreogenen Erkrankungen.) A. Oswald.
57 Device for Writing with the Teeth after Loss of Arms. (Vorrichtung zum Schreiben mit Hilfe des Gebisses.) J. Grünberg.
58 Nature and Heredity of Venereal Diseases and their Influence on the Course of Wounds. (Wesen und Vererbung gewisser infektiöser Krankheiten und deren Einfluss auf den Wundverlauf.) M. v. Zeissl.

May 3, No. 18, pp. 453-480

59 *Bockhart's Impetigo. (Pyodermie.) P. G. Unna.
60 Erysipelas. P. G. Unna.
61 *Constitutional Purpura or Pseudohemophilia. (Die essentielle Thrombopenie.) E. Frank. Concluded in No. 19.
62 *Improved Technic for Frommer's Test for Acetone. N. O. Engfeldt.
63 Typhoid Abscesses; Seven Cases. M. Willimczik.
64 *Operative Treatment of Grazing Wounds of the Skull. (Welche Erfolge hat die operative Behandlung der Tangentialschüsse des Schädels?) F. Sauer.
65 Radium Treatment of Scars. (Radiumbehandlung von Narben.) Kaminer.
66 *Standards for Estimation of Condition of Nourishment, etc. (281 erwachsene Menschen mit "centralnormalem" Ernährungszustand.) G. Oeder. Commenced in No. 17.

59. **Bockhart's Impetigo.**—Unna refers to Bockhart's experiments in 1887 on his own body in which he proved that the pus cocci were able to induce suppurative pustular lesions on the skin different from furuncles, although they are liable to run into furunculosis, and possibly lead to sepsis. It is very rare under ordinary conditions of hygiene, but is frequently encountered now among the soldiers, and is liable to develop into a chronic course. Prophylaxis is the main thing, he preaches. "No true pus coccus affection of the skin, no isolated furuncle, no felon should be taken lightly. When any of these have lasted any time true pus cocci are already installed in the neighboring, apparently sound hair follicles, ready to start new impetigo or furuncles. They must be walled off from the rest of the skin with a rampart of coccus-destroying substances." For this he uses ichthyol, or ichthyol or mercury-phenol plaster, or a zinc-sulphur-chalk-turpentine paste, something like the formula given in these columns recently, May 1, p. 1533.

Before applying any of the above he dabs lightly with concentrated phenol the suppurating points and the roots of the hairs around this spot. In case of extensive pyodermia all the pustules must be opened and the entire body rubbed long and thoroughly with soap. Any soap will do, especially soft soap, except tar soap, which, he says, breeds folliculitis. In sharp contrast to eczema, the skin all around the impetigo is sound. All the pustules then, with their environment, are spread with the zinc paste. If an impetigo pustule is deep and tender, it should be treated as described in these columns, April 17, p. 1365, Abstract 47. The parts treated with the paste must be covered with gauze to prevent friction from the clothing, as friction and maceration promote the spread of the impetigo.

61. **Constitutional Purpura.**—Frank remarks that the hereditary character of hemophilia is the main feature which distinguishes it from purpura, as the latter is strictly individual. The symptoms of each are so much alike that purpura might well be called pseudohemophilia, although the petechiae scarcely ever occur to such an extent in true hemophilia, and the joints are spared in purpura. Of the chronic form of purpura, accompanying the individual through life after it is once acquired, Frank cites thirty-four cases from the literature and describes four from his own experience, referring also to a few cases recently published, including Duke's in THE JOURNAL, Oct. 1, 1910, p. 1189. He has never known of complete recovery in any case, and is inclined to believe that in most cases the supposed recovery from an acute attack was merely the subsidence into latency of a chronic purpura which the physician had happened to see during an exacerbation. In the three cases reported in this instalment, the first symptoms developed at the age of 12, and in the first case the hemorrhage proved fatal at the second exacerbation a year later. During the year's interval the child had apparently thrown off the affection. There was almost a total absence of blood platelets—a thrombopeny. In the third case attacks had returned once a year, for six years, lasting for a few weeks each time. In one of these attacks hemorrhages in both eyes compelled enucleation of one and iridectomy in the other eye.

62. **Tests for Acetone.**—Engfeldt modifies Frommer's technic for acetone in the urine by increasing the proportion of alkali. It renders the test so sensitive that it is not adapted for clinical use, as traces of acetone are present in all the body fluids. But for physiologic research the modified test is bound to prove very valuable.

64. **Tangential Wounds of the Skull.**—Sauer declares that if the skull has not been opened by the bullet, it is better to refrain for a time from operating even although the skull has been indented along the course of the bullet. By waiting until the man has reached a hospital where asepsis can be counted on, his chances are much better. The danger from the delay is far less than from the infection which is almost certain when any operation is attempted at the front.

66. **Standards for State of Nourishment.**—Oeder has worked out a formula for the standard weight for men and for women according to the height. Also an index for the condition as regards the nourishment. The latter standard is independent of the height, and both of the age. His previous communication on this *Fettpolsterdickeindex* was summarized in Abstract 120, May 28, 1910, p. 1831. He takes up a fold in the abdominal wall, to the right of the umbilicus, and measures its thickness with calipers. He states here that the normal range is from 2.48 to 2.69 cm., from 1 to 1⅛ inches.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 1, XLV, No. 18, pp. 545-576

67 *Actinomycotic Suppurative Meningitis; Two Cases. C. Wegelin.
68 *Outcome of Treatment of Lung Diseases in a Swiss Sanatorium. (Dauerresultate des Glarner Sanatoriums für Lungenkranke in Braunwald.) F. Oeri.

67. **Actinomycotic Meningitis.**—The fatal meningitis was traced in one case to a minute latent abscess in the lung, and in the other to a process in the jaw below a carious tooth. The primary lesion may be latent or manifest in such cases, but the meningitis runs an acute course when symptoms develop. The patients were a young man and a woman of 36.

68. **Outcome of Sanatorium Treatment.**—Oeri reviews the present status in 1,365 cases of pulmonary tuberculosis given sanatorium treatment during the fifteen years before 1913. Of the 355 in the first stage, 83.9 per cent. are still living; 54.2 per cent. of the 223 in the second stage and 25 per cent. of the 516 in the third stage. The outcome is not known in 169 cases. Of the first stage survivors, 82.5 per cent. have full earning capacity, as also 80 per cent. of the surviving second stage patients, and 60 per cent. of those in the third stage. He mentions in particular that of the 288 patients who still expectorate, 180 say they use their pocket spit cups regularly and fifty-six use its equivalent. Only twenty-eight have given it up as too much of a bother.

More than 10 per cent. of all the survivors related that they had been handicapped later in their self-support and in their social life by the fact that they had been in a sanatorium. The stigma clings to them, and they complained of the irrational prejudices of their environment. This is particularly to be deplored, as this unreason makes it especially hard for those who are fighting their disease most conscientiously. He thinks physicians have unintentionally bred this tuberculophobia by their efforts to stamp out the disease. It is the task of the profession now to realize, itself, and to teach, that tuberculosis is not one of the diseases which appear in epidemic form, like cholera or typhoid, and which can be avoided by keeping away from them. We must realize that we cannot escape contact with tuberculosis; we encounter it right and left. Instead of thrusting out those afflicted with it, we must train them to help us fight it. This is possible only when physicians combat the fear of bacilli, a fear which we ourselves have planted, and impress on the laity the realization of their natural resisting forces. Not until this is done can we expect that the tuberculous will do their part by applying early for institutional care, and that they will not be deterred by the prejudices of others against the use of prophylactic measures. It is our task to encourage and make it easy for the tuberculous to apply early for instruction and treatment.

Deutsche medizinische Wochenschrift, Berlin

April 15, XLI, No. 16, pp. 457-484

69 *Compression of Femoral Arteries as Test of Functional Capacity of the Heart. (Funktionsprufung des Herzens nach einer 10 jahrigen klinischen Erfahrung.) M. Katzenstein.
70 *Operative Fixation of Sagging Liver. (Verfahren zur Leberbefestigung bei Lebersenkung und eine Bezeichnung für die Grösse einer Magensenkung.) W. Gross.
71 Gunshot Wounds of the Lungs. (Brust-Lungenschüsse und ihre *Komplikationen.*) E. Schultze.
72 Artificial Legs. (Ueber kunstliche Glieder.) H. L. Heusner.
73 Diathermy for the Wounded. G. Bucky.
74 Experiences in a Field Hospital. P. Kayser. Commenced in No. 15
75 *Treatment of Venereal Diseases During the War. (Behandlung geschlechtskranker Soldaten im Kriege.) C. Stern.
76 Frost-Bite More Liable with Waterproof Foot-Gear. (Wasserdichte Fussbekleidung und Erfrierungen.) H. Glasewald.

April 29, No. 18, pp. 517-541

77 Bread and Its Properties. (Vom Brot und seinen Eigenschaften.) M. Rubner.
78 Importance of Early Operative Treatment of Wounds of Peripheral Nerves in War. R. Cassirer.
79 Gins' and Conradi's Methods for Differentiating Diphtheria Bacilli Are Not Reliable. (Zur Diphtheriediagnose.) H. Reiter.
80 *Agglutination *After Vaccination Against Typhoid. A. Hirschbruch.*
81 Protective Ferments in Serodiagnosis. (Klinische Studien mit Abderhaldens *Dialysierverfahren.) H. Steiner. Commenced in* No. 17.
82 *Tardy Hemorrhage After Gunshot Wounds. (Spatblutungen nach Schussverletzungen.) C. Longard.
83 Improved Extension Plaster Cast. H. Topfer.
84 *Simple Test for Iodin. J. Schumacher.
85 Means to Reduce Infant Mortality. (Bekampfung der Sauglingssterblichkeit—eine Frage der Massenbelehrung.) Von Behr Pinnow. Commenced in No. 17.

69. **Test of Functional Capacity of the Heart.**—It is now ten years since Katzenstein called attention to the importance of the findings when compression is applied to the femoral arteries. He presses with the middle finger the artery at Poupart's ligament, through a single covering with no exposure of the patient, compressing thus the artery on both sides. The blood pressure and pulse are recorded before, and again after the pressure has been applied for from two to two and a half minutes. With a sound heart, the blood pressure is found higher afterward, the pulse slower. If the blood pressure and the pulse beat have not

changed, this shows that the heart is not quite normal, but not actually incompetent; when the insufficiency is of a higher grade, the pulse increases. When the blood pressure is found lower and the pulse is accelerated, this warns of severe functional disturbance on the part of the heart. Its severity is proportional to the extent of the drop in the blood pressure and the increase in the pulse beat. He has applied this test or had it applied once or more times nearly every day of the ten years, and this experience has constantly confirmed the accuracy and the convenience of the simple technic.

The findings with this test show how the heart suffers from chloroform; even a sound heart shows signs of injury up to the twelfth or fourteenth day. With an already damaged heart it may be three weeks before the heart returns to its previous condition. He thinks that these findings warn against letting patients get up early after any operation unless the heart is sound and the operation a minor one. With chloroform and an already weakened heart, the danger of thrombosis is materially greater. Katzenstein advises against any operation when this test shows that the heart is in a bad way unless the indications are vital, and then usually only under local anesthesia. The findings with this functional test warn of the cases in which no operation should be attempted, and of those in which local anesthesia will have to be used. He gives the details of three particularly instructive cases, out of 3,000 in which this test has been applied, to illustrate the important information afforded by it when nothing else suggested that the heart muscle was below par. In one case of pyonephrosis this test warned of the danger from general anesthesia; even under local anesthesia there was a severe collapse and the pulse kept for weeks at 115 or 120, until final recovery followed. There is very little doubt that this patient would not have survived under general anesthesia.

70. **Fixation of Sagging Liver.**—Gross has usually found the ligamentum teres of the liver stout and strong. Pulling on it tips up the liver, and when this heavy organ has sagged it can be restored to place by cutting this round ligament near the umbilicus, drawing it up over the ninth rib and suturing the ends of the ligament together again. This pulled the edge of the liver up 10 cm. higher in the one case in which he has applied this method to date. All disturbances ceased at once and the woman has been in good health since. The edge of the liver can be felt two fingerbreadths above the umbilicus. The ligamentum teres he utilizes also in fixation of the sagging stomach, tying off the pylorus with it, and thus raising the stomach when the ptosis is of the third degree. With the first degree of ptosis of the stomach, the antrum of the pylorus reaches just to the umbilicus. With ptosis of the second degree, the umbilicus lies at about the middle of the antrum. The third degree is represented by the antrum entirely below the umbilicus. When the stomach sags to this extent, he declares that no relief can be anticipated except from an operation.

75. **Venereal Disease in the Army.**—Stern is chief of a special hospital at Düsseldorf for soldiers with venereal diseases, and he rejoices over the fact that the younger men form only a small proportion, 25 per cent., of the soldiers with venereal diseases. He regards this as evidence that the "enlightening" of the public in sexual hygiene is beginning to bear fruit. Wolff at Stettin has reported similar experiences; married men form about 30 per cent. of all the cases, and Stern's experience has confirmed this, that the married soldiers expose themselves most readily to chances of infection. Stern has been impressed further with the large number of extragenital cases of syphilis now being encountered. The increase in the numbers of primary sores on the lip he ascribes in part to the overoptimism of both physicians and laity in regard to the permanent efficacy of salvarsan. People are relying on it too much and thus underestimating the dangers of syphilitic infection.

80. **Agglutination Test After Vaccination Against Typhoid.**—Hirschbruch describes a method of graduated estimation of the agglutinins in the serum which gives instructive findings not only after vaccination, but in all cases suspected of typhoid. The ordinary agglutination test is useless in those vaccinated against typhoid, he says.

82. **Tardy Hemorrhage After Gunshot Wounds.**—Longard refers in particular to wounds in which the artery has been grazed by a bullet, and this damaged part of the wall gives way sooner or later. He has had about thirty-two cases in which sudden profuse hemorrhage came on six or eight days after the man had been shot, but was apparently recovering without ill effects. The wounds often had nearly or quite healed by this time. The artery has to be completely exposed in order to find and ligate the bleeding vessel. There is no chance of a large artery's healing spontaneously after such an injury.

84. **Test for Iodin.**—Schumacher calls attention to a test based on the facts that hydrogen dioxid is able to liberate iodin from its salts and also to oxidate it. Then by adding some substance, such as a 1 per cent. alcoholic solution of benzidin, which changes its tint with oxidation, we can determine the presence of iodin and gauge its amount. The hydrogen dioxid is mixed with an equal amount of the urine to be tested and with one-fifth the amount of the benzidin solution. On heating the upper part of the fluid just to boiling, it turns brown or black if there is iodin present, and a precipitate of the same color is thrown down. Cooling a little and adding chloroform, the latter turns brown or black. Normal urine keeps its tint unmodified or becomes a dark straw yellow. The color change is much more decided with this test than with the nitric-acid technic.

Jahrbuch für Kinderheilkunde, Berlin

May, LXXXI, No. 5, pp. 371-464

86 Specific Susceptibility to Tuberculin and Its Annulling by Administration of Tuberculin. (Die Tuberkulinüberempfindlichkeit und die durch Tuberkulindarreichung zu erzielende Tuberkulinunempfindlichkeit.) G. Bessau. . Concluded in No. 6.
87 Pseudomeningitis in Tuberculous Children; Two Cases. H. Brockmann.
88 Mineral Metabolism in Infants on Breast Milk and Albumin Milk. (Vergleichende Untersuchungen über den Stoffumsatz bei Ammenmilch und Eiweissmilch mit bes. Berücksichtigung des Schwefelhaushaltes.) A. Peiser.

Medizinische Klinik, Berlin

May 2, XI, No. 18, pp. 501-526

89 Wounds of Peripheral Nerves in War. M. Nonne. Concluded in No. 19.
90 Hygiene at the Front. (Hygienische Erfahrungen im Felde.) P. Kuhn and B. Möllers. Commenced in No. 15.
91 Work in the Field Hospital. (Aerztliche Tätigkeit und Erfahrungen beim Feldlazarett.) E. Liebert.
92 *Etiology of Disease of Ovaries and Tubes. (Adnexerkrankungen.) A. Neisser.
93 Trauma and Chronic Infectious Diseases. E. Schepelmann.

92. **Nongonorrheal Pelvic Disease.**—Neisser protests most emphatically against the assumption that inflammatory processes in ovaries or tubes in young women soon after marriage are always of gonorrheal origin. The gynecologists almost invariably affirm this, and when no gonococci can be discovered in either the husband or the wife, they assume merely that the bacteriologic technic was defective. Some of the various germs which are liable to swarm in the urethra that has once been the site of gonorrhea may acquire pathogenic properties enough to set up inflammation in the ovaries or tubes—Neisser thinks there is much to sustain the possibility of this, although it has not been demonstrated to date. This will require the cooperation of both urologists and gynecologists in zealous bacteriologic research, but if it can be proved much harm can be obviated. As things are now, these ovarian and tubal processes in young wives are liable to be given erroneous treatment with antigonococcus vaccines, etc. Besides this, the confident assertion of the gynecologist that gonococci must be responsible for the pelvic mischief, has broken up the happiness of many a young couple and led to divorce proceedings, when in reality no basis for the assertion could be produced.

Progress cannot be made here without the help of the gynecologists; they should examine as extensively as possible the secretions from the uterus and cervix, both with the microscope and with culture mediums, excluding absolutely all admixture of vaginal secretions. The mucus should be taken from the cervix twenty-four or forty-eight hours after careful disinfection of the canal of the cervix.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

May, XLI, No. 5, pp. 371-456

94 *Eclampsia at Fourth Month of Pregnancy. O. Eisenreich and A. Schmincke.
95 Localization of Influenza Bacilli in Genital Organs at Term as Cause of Puerperal Fever; Recovery. H. Thaler and H. Zuckermann.
96 *The Protective Ferments in Relation to Obstetrics and Gynecology. (Neue Probleme des parenteralen Eiweissabbaues in ihrer Beziehung zur Geburtshülfe und Gynakologie.) T. Petri. Commenced in No. 4.
97 Combination Actinotherapy for Uterine and Mammary Cancer. (Mehrjahrige Erfolge der kombinierten Aktino-Therapie bei Karzinom des Uterus und der Mamma.) G. Klein.

94. **Eclampsia at Fourth Month of Pregnancy.**—The necropsy findings in the case reported explained the sudden death of the woman of 27 as the result of rupture of a sclerotic cerebral artery in consequence of the sudden rise in blood pressure during an eclamptic convulsion. The woman had a chronic kidney affection and was in the fourth month of pregnancy. There had been no convulsions before this severe one which proved fatal, but the liver showed the changes characteristic of eclampsia.

96. **Serodiagnosis of Pregnancy.**—Petri's extensive clinical and experimental research has elicited a number of new facts, he says, which have an important bearing on the parenteral digestion of albumin, especially from the obstetric and gynecologic standpoints. The tables and the details of the experiments show the wide scope of the work undertaken. Among the new facts thus learned are that the same conditions as follow parenteral incorporation of the individual's own serum can be artificially induced in animals by causing the production of a hematoma. Ferments are formed after absorption of the serum albumin in the blood effusion, and these ferments are able to digest various organ tissues, including placenta tissue. For this and other reasons cited, he says that the Abderhalden reaction will always be positive in pregnant women, but it will also be positive in the nonpregnant whenever conditions are present, such as pathologic or mechanical processes causing extravasation of blood, which permit the absorption of the individual's own albumin. The albumin-splitting ferments are probably mobilized at once after intravenous introduction of unputrefied albumin from the individual or from another individual of the same species, man or animal. The duration of the action of the ferments is probably limited to a certain period of time.

Münchener medizinische Wochenschrift, Munich

April 13, LXII, No. 15, pp. 497-536

98 *Action of Hydrogen Dioxid and Sugar on Anaerobes. (Wirkung von Wasserstoffsuperoxyd und von Zucker auf die Anaerobier.) K. Spiro.
99 Combined Radiotherapy and Intravenous Chemotherapy in Treatment of Uterine and Mammary Cancer. G. Klein.
100 *Typhoid Spondylitis. G. Galli.
101 Apparatus for Inducing Pneumothorax. (Neuer, transportabler Pneumothoraxapparat mit Benutzung von Sauerstoff und Stickstoff in statu nascendi.) F. Kornmann.
102 *Rapid Restoration of Functions of Resected and Sutured Sciatic Nerve. H. Thiemann.
103 *Gunshot Wounds of Peripheral Nerves. L. Huismans, K. Steinthal, K. Döpfner and R. Sauter.
104 Localization of Foreign Bodies. (Neues Lokalisationverfahren mittels metallischer Koordinatensysteme.) P. Meisel.
105 Bacteriologic Work at the Front. J. Basten.
106 Importance of Supplying Salt When the Febrile Are Kept Long on Milk. (Kochsalz bei langer dauernden Fieberzuständen.) J. Schütz.
107 Appendicitis as Seen in Field Hospitals. (Blinddarmentzündung im Felde.) E. Pflaumer.

April 27, No. 17, pp. 573-608

108 Mode of Action of Common Disinfectants. (Prinzipien in der Bekampfung einzelner lokaler Wundentzündungen.) O. v. Herff.
109 Selection of Disinfectants for Special Microbes. O. v. Herff. (Zur Behandlung der septischen Allgemeininfektion.) P. Hüssy.
110 *Complement Fixation as Test for Typhoid. (Die Komplementablenkung als Reaktion zur Unterscheidung zwischen den Seren Typhuserkrankter und gegen Typhus Geimpfter.) Felke.
111 *The Opium-Bromid Treatment of Epilepsy According to Flechsig. H. G. W. Kellner.
112 The Protective Ferments in Psychiatry. (Zur Abderhaldenschen Reaktion in der Psychiatrie.) W. Mayer.
113 *Wounds of the Skull. (Schadelschussverletzungen im Feldlazarett.) A. Lawen and Syring.
114 Meningitis from Extension to the Ventricles of Suppuration Following Gunshot Wounds of the Brain. H. Chiari.
115 Intracranial Pneumatocele Following Gunshot Wound; Two Cases. J. Duken.
116 Flap-Door Incision and Draining to Prevent Prolapse of Brain Substance (Zur Verhutung des Hirnprolaps nach Schadelschussen.) Boerner
117 Homolateral Hemiplegia After Injury of the Head. L. Roemheld.

98. **Action of Peroxids and Sugar on Anaerobes.**—Spiro writes from the Institute for Physiologic Chemistry at Strassburg to offer an explanation for the undoubted benefit realized in treatment of the wounded by hydrogen dioxid and sugar. The sugar modifies the medium and this in turn acts on the germs in the medium. Those that have been having the upper hand are crowded out, and harmless ones gain the supremacy. The bacterial growth is different when there is sugar present, and the products of the bacterial growth are different. For example, a putrefying solution of yeast smells of indol; if sugar is added, there is no trace of indol to be detected with any tests. Modifying the medium modifies the bacterial growth, and this may mean everything in case of a wound, as wounds swarm with all kinds of bacteria. He ascribes the favorable action of hydrogen dioxid to its physical properties; it cleans out the wound, floats out on its foam debris and bacteria from the depths and crevices, bringing them to the surface where the light and air or local measures can destroy them more easily.

100. **Typhoid Spondylitis.**—A man of 59, toward the close of an ordinary attack of typhoid, suddenly developed attacks of chills and high fever suggesting pyemia. This was finally explained, after a month, by pains in the lumbar region from a typical typhoid spondylitis. The pains were relieved by a plaster corset, but he was never entirely free from pain for eight months and the fever kept up for the same length of time. Recovery followed at last, apparently complete. Agglutination was pronounced at 1:200 even after eight months. The pain with typhoid spondylitis is more intense than with tuberculosis of the spine, and is aggravated by the slightest movement or lightest touch, and is not relieved by drugs, not even morphin in the usual dosage. The tenderness is localized in the apophysis of one or two vertebrae. In 80 per cent. of the cases on record, about 100, the lumbar region was the seat of the trouble. The affection may linger for two years or more.

102. **Rapid Restoration of Function after Suture of Nerve.**—Thiemann reports a case which he thinks is a record breaker in that complete paralysis of the foot and the most intense and continuous pains, which had followed a gunshot wound of the knee, were cured by resection of 3 cm. of the cicatrized nerve and suture of the stumps. The pain was arrested at once, and the man was able to move his toes by the end of the second week and the whole foot when the cast was taken off in the third week. Both the wound and the operation healed by primary intention.

103. **Suture of Peripheral Nerves.**—The technic for separating a nerve embedded in cicatricial tissues and also for partial or complete suture are described, with one illustration. If there is suppuration no attempt should be made until the inflammation has subsided. Fistulas in the vicinity and sequesters are also contraindications. The sound nerve should be touched with instruments as little as possible. The plaster splint should be applied for two weeks with the nerve two-thirds relaxed, then relaxed still more for a week, and then gradually stretched.

Steinthal presents data from times of peace which show that even when all conditions are favorable the outcome of suture of a nerve is not so favorable as generally assumed. In the war wounds the nerve is damaged much more than is the case usually in the injuries outside of war. He has sutured the nerve in twenty-three cases and released it from pressure of scar tissue in thirteen others. He recalls that operation must be delayed until all inflammation is past, and warns that too great hopes must not be placed on it. The wounded must be informed that the operation is unconditionally necessary but that a complete success cannot be guaranteed.

110. **Complement Fixation as Test for Typhoid.**—Felke states that in 39 persons vaccinated against typhoid, the agglutination test gave nearly constant positive findings while the complement-fixation test was constantly negative. In 9 typhoid cases, agglutination was positive and also the complement-fixation test, as also in a few convalescing from typhoid. He thinks that the complement-fixation test may thus prove of assistance in diagnosing or excluding typhoid in persons who have been vaccinated.

111. **Opium-Bromid Treatment of Epilepsy.**—Kellner has followed Flechsig's technic in treatment of 250 epileptics since 1906 and has never witnessed any harm from it. His impression on the whole is favorable and he asks those who denounce this method whether they can show any better results than his own average of 25 per cent. essentially improved and all more or less modified for the better. The opium is given three times daily for fifty days, beginning with 0.05 gm. of the extract of opium at a dose, increasing to a maximum of 0.29 gm. This is the highest dosage, calculated for an otherwise healthy adult. The fifty-first day the opium is stopped and bromids given, in the Erlenmeyer mixture, three times a day. The dosage here must be cautiously individualized and supervised, watching for signs of intolerance or bromism and slowly reducing the dose if such appear. Sudden suspension of the bromids almost inevitably brings back the seizures. His usual dose of the bromid mixture for a strong adult is 5 gm. a day: 1 gm. in the morning and 2 at noon and again at evening. This is increased to 6 gm. in a week and to 7 gm. after another week. He never goes above this latter dose, but thinks the bromids will have to be taken all the rest of the life if the epilepsy has been cured by this course of treatment and prolonged observation has shown that a certain dose can be kept up indefinitely without harm.

He relates a few typical instances of the benefit from this method of treatment. One patient was a young man who had had for years several seizures a week, rebellious to all the measures applied by various physicians. He was the only child of wealthy parents and was intelligent and well brought up. During the last two years he had had periods of wandering, losing his identity. He took the opium-bromid course in 1910 and had his seizures as usual during the fifty opium days. They stopped when the bromid was begun and he has never had any seizures since. As an extra precaution he returns once a year and takes the whole course over again, and keeps up the bromids all the time, taking constantly his 5 gm. a day. He feels and lives like a perfectly healthy man. Some other cases are reported to show the seizure-provoking influence of alcohol; even half a glass of light wine may bring on an attack after months of freedom.

113. **Importance of Plaster Casts in Treatment of Wounds in War.**—Läwen expatiates on the great value of fenestrated plaster casts in treatment of nearly all kinds of wounds. He is referring here in particular to wounds of the skull, and gives several illustrations of the casts he uses for wounds of the front or side of the skull. The cast leaves the wounded part exposed but otherwise embraces the head and thorax. It materially facilitates changing the dressings, as the wound can be dressed without moving the head. The immobilization relieves the pain and quiets the patient while the brain benefits by the absolute repose thus enforced. If the patient has to be taken elsewhere the cast protects him against injury.

Wiener klinische Wochenschrift, Vienna

April 27, XXVIII, No. 17, pp. 435-462

118 War Aneurysms. (Weitere Erfahrungen über Kriegsaneurysmen, mit bes. Berücksichtigung der Gefassnaht.) H. v. Haberer. Concluded in No. 18.
119 Protect Against Droplet Infection of Typhus as Well as Against Vermin. (Persönliche Prophylaxe gegen den Flecktyphus.) R. Kraus.
120 Complement Fixation in Smallpox. A. v. Kouschegg.
121 Abdominal Wounds. (2 Falle von Kotphlegmone und Kotabszess nach Schussverletzung des Bauches durch Schrapnellfüllkugeln.) V K. Irk.
122 Stretcher on Which the Wounded Can be Carried from the Battle Field to His Home, Wounds Dressed and be Operated on Without Change. (Wie bleibt der Verwundete trotz Operation und Verbandwechsels auf derselben Trage von Gefechtsfeld bis ins Hinterland?) F. Tintner.
123 Wounds of the Spinal Cord in War. (Zur Kasuistik der Rückenmarkschadigungen durch Wirbelschuss.) E. Gamper. Commenced in No. 16.

Zeitschrift für klinische Medizin, Berlin

LXXXI, Nos. 3-4, pp. 199-354. Last indexed February 27, p. 782

124 The Hamburg Diphtheria Epidemic, 1909-1914. F. Reiche.
125 Determination of the Reaction of the Urine. (Reaktionsbestimmungen des Harns.) H. F. Höst.
126 Hexamethylenamin as Disinfectant for the Urinary Passages. (Urotropin als Desinfiziens der Harnwege.) H. F. Höst.
127 Experimental Research on the Biologic Action of Thorium X, Especially on the Blood. A. da S. Mello.

Zentralblatt für Chirurgie, Leipzig

April 17, XLII, No. 16, pp. 257-280

128 *Celluloid Plate for Closing Gap in Skull Not Durable. (Zur Frage der Deckung von grossen Schädeldefekten mittels Zelluloidplatten.) Funke.

April 24, No. 17, pp. 281-296

129 Plastic Operations in War Aneurysms in the Groin. (Zur Behandlung der Schussaneurysmen durch künstliche Wandverstärkung bei Aneurysmen besonderen Sitzes.) H. F. O. Haberland.

May 1, No. 18, pp. 297-320

130 *Technic for Amputations. (Wie soll man amputieren?) Chlumsky.
131 Pedunculated Skin Flaps to Cover Stump End. (Hautplastik statt Nachamputation.) A. Schanz.

128. **Celluloid Not Durable to Close Gap in Skull.**—Funke demonstrated in 1908 a boy who had worn a large celluloid plate for five years as a covering over an extensive defect in the skull. The perforated plate measured 7 by 12 cm. and healed in place without reaction. The sixth year two fistulas developed in the scalp, and he exposed the plate to investigate. He found it broken at several points, the celluloid crumbling, having lost its elasticity and firm structure. A gold plate was introduced in its place and the soft parts healed over it without reaction.

130. **Technic for Amputations.**—Chlumsky insists that the more of the limb that is saved, the better the functioning later. Also that it is wiser to use some kind of prosthesis from the earliest possible moment as the stump heals and behaves differently when it is being actively used. Much is lost that can never be regained if the limb is not used until after retraction, etc., are complete. Some simple artificial limb should be applied as early as possible, changing later to the final prosthesis to be worn.

Zentralblatt für Gynäkologie, Leipzig

April 17, XXXIX, No. 16, pp. 257-272

132 Conservative and Operative Treatment of Chronic Disease of Ovaries and Tubes. (Chronische Adnexerkrankungen.) H. L. Coopman.

April 24, No. 17, pp. 273-296

133 *Treatment of Pregnancy Kidney and Eclampsia. (Zur Behandlung der Schwangerschaftsniere und Eklampsie.) W. Stoeckel.

May 1, No. 18, pp. 297-312

134 *Conservative Surgery of the Ovaries. (Zur Kasuistik der erweiterten Ovarienresektion nach Menge.) E. Löhnberg.

133. **Pregnancy Kidney and Eclampsia.**—Stoeckel's communication is a reply to Gessner's article with this title which was summarized in these columns March 6, 1915, p. 865. Stoeckel denounces his premises as mistaken and his advice as fraught with danger.

134. **Conservative Surgery of the Ovaries.**—Löhnberg reports two cases in which there did not seem to be a trace of normal ovarian tissue as both ovaries were changed into cystomas. Yet some of the cystoma tissue was left on both sides at the operation in the hope that menstruation might continue. This hope was realized, and the young woman not only menstruated regularly thereafter, but conception occurred. In the other case there had been amenorrhea for

three months at the time of the ovariectomy. Seven months later there was an apparently normal menses, but it did not return afterward and the state of the internal genitals thereafter corresponded to that of the menopause.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 25, XXXVI, No. 33, pp. 513-528

135 *The Hemorrhoid Syndrome. (Neuro-artritismo e sindrome emorroidaria.) C. Pascale.

April 29, No. 34, pp. 529-544

136 *Possibility of Recuperation of Intestine in Strangulated Hernia. C. Scandola.

May 2, No. 35, pp. 545-560

137 Strangulation in Hernia of Appendices Epiploicae; Alleged Twelfth Case on Record. R. Mosti.

135. **The Hemorrhoid Syndrome.**—Pascale reports the case of a man of 60 with hemorrhoids for ten or twelve years and a general tendency to sluggish metabolism. A recent accident to one eye was followed by glycosuria, and then came pains suggesting gallstone trouble, and signs of cystitis. The syndrome thus included glycosuria, cholelithiasis and bladder trouble, but Pascale's analysis and the results of treatment demonstrate that the whole syndrome was merely the manifestation of the condition typified by the tendency to hemorrhoids. Measures to correct this tendency and restore the circulation to normal were followed by the subsidence of the other trains of symptoms, as he relates in detail.

136. **Recuperation of Strangulated Intestine.**—Scandola gives an illustrated description of the findings in two series of experiments on dogs. In the first he shut off a loop 30 cm. long from the rest of the circulation by ligating the artery and vein at each end of the loop. The loop was then resected after six, twelve, eighteen or twenty-four hours and examined under the microscope. In the second series the same ligation was done but the ligatures were removed six, twelve or eighteen hours later and the surviving dogs were killed after an interval of three weeks. Eight dogs were used in all and the results were concordant in that the loop of intestine was able to recuperate whenever the injury from the temporary strangulation was restricted to the mucosa, or the other coats of the intestine were but slightly affected. Even quite serious changes in the mucosa retrogressed, but pronounced changes in the outer layers proved inevitably fatal. Nothing was found to differentiate the strangulated portion in the six-hour animal.

Policlinico, Rome

May 2, XXII, No. 18, pp. 589-620

138 Agglutination in Undulant or Malta Fever. F. Virgillo.

Riforma Medica, Naples

May 1, XXXI, No. 18, pp. 477-504

139 *Weiss' Potassium Permanganate Reaction in the Urine. (Sul valore clinico della reazione di Weisz.) A. Ferrannini.
140 Case of Syphilitic Meningomyelitis. U. Scinicariello. Commenced in No. 17.

139. **Test for Chromogen in the Urine.**—Ferrannini discusses the experiences that have been published by others, the technic, the chemistry involved, the reaction in the healthy and in acute and chronic nontuberculous affections, and in various forms of tuberculosis. He also compares the findings with this test with those of the diazo and the tuberculin skin test. The chromogen reaction is not specific for any disease, but in an acute disease, other than typhoid, a positive and pronounced reaction obtainable for several days in succession, strongly suggests tuberculosis. In chronic disease, severe and of long standing, an intense and constant reaction testifies also to the tuberculous nature of the disease, and a negative reaction excludes this unless the disease is in its terminal phase. In tuberculosis, if the reaction is intense and constant, the outlook is unfavorable even although the clinical course seems promising. On the other hand, a faint and inconstant reaction offers a favorable prognosis almost regardless of the clinical course at the time. The long bibliography appended is nearly all Italian. About a dozen French articles are listed but no British or American articles.

Tumori, Rome

March-April, IV, No. 5, pp. 509-632

141 *Primary Cancer of Aberrant Mammary Gland Tissue. (Carcinoma primitivo di un lobo aberrante presternale della mammella.) L. Stropeni.
142 *Primary Tumors of the Pericardium. G. Forni.
143 *Chorioepitheliomatous Tumors in Testicles and Ovaries. (Contributo allo studio dello spermioblastoma a tessitura corioepiteliale.) D. B. Roncali.
144 Gastric Leiomyomas. (Contributo alla conoscenza dei tumori a fibre muscolari liscie dello stomaco.) F. Nassetti. To be continued.

141. **Cancer in Aberrant Mammary Gland Tissue.**—Stropeni's patient was a woman of 57 with an adenocarcinoma in front of the sternum. It was removed three months after the first symptoms had been noted. The microscope revealed the structure to be that of an aberrant lobe of the mammary gland, without any connection with the latter. There has been no tendency to recurrence during the year since although the tumor had been of an unusually rapid and malignant growth.

142. **Primary Tumors of the Pericardium.**—Forni has compiled from the literature fifteen cases and reports another from his own experience. The ages of the patients ranged from 15 to 73, and all were malignant growths but two, but nearly all were necropsy surprises. Even when the malignant disease was known, its exact localization was impossible during life as a rule, or else it was impossible to differentiate the nature of the heart trouble known to exist.

143. **Cancer of the Testicle.**—Roncali refers in particular to tumors of chorioepitheliomatous structure. He regards them as essentially analogous to physiologic embryos; they are pathologic embryos. Chorioepitheliomas of the testicle were long supposed to be sarcomas, but improved technic proved this a mistake. Roncali has encountered two cases, as he describes in detail. The first patient was a young man of 18 who had first noticed signs of a tumor in the scrotum two months before its operative removal. The growth involved both the testicle and the epididymis. A large metastatic tumor developed later in the kidney region, and proved fatal eight months after the first operation. The second patient was also a young man; he was extremely debilitated when first seen and symptoms in the lungs led to the diagnosis of fulminating tuberculosis. He died a few days later and nodules of a neoplastic nature were found in the lungs, suggesting the structure of a chorioepithelioma. The testicles were examined when the above was determined, and the right testicle was found to be the seat of a typical chorioepithelioma, the structure the same as in the nodules found in the lungs, liver, kidneys and spleen.

Semana Medica, Buenos Aires

April 1, XXII, No. 13, pp. 409-440

145 Cystitis with Calcareous Deposits; Two Cases. (Cistitis incrustante.) E. Pozzi.
146 Gangrenous Appendicitis During Pregnancy; Two Cases. (Peritonitis generalizada por apendicitis perforada durante el embarazo.) R. F. Coulin.
147 Relations Between Nose Breathing and Pulmonary Tuberculosis. A. Philibert.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 24, I, No. 17, pp. 1415-1502

148 The Wounds from Modern Projectiles. (Wonden door hedendaagsche vurrwapenen.) P. H. Van Roojen.
149 *Localization of the Pain with Chronic Disease of the Pancreas. C. G. Vervloet.
150 Trigeminal Disturbances from Tumor in the Brain as Aid in Localization. C. T. Van Valkenburg.

149. **The Pain in Differential Diagnosis of Chronic Disease of the Pancreas.**—Vervloet gives the details of six cases to show that pain is not so rare with chronic pancreatitis as some assert, and that its location is characteristic, as also its persistency, long duration, and sometimes its severity. Even when there is no spontaneous pain it may be elicited by pressure. The pain in the lumbar region is most characteristic, but there may be pain in the stomach region and along the median line and in both flanks; in the left hypochon-

drium; the lumbar vertebrae; the upper third of the sacrum; a region a few centimeters wide along and to the left of the lumbar vertebrae; the left arm and hand; the left thigh to the knee; the left scapula and shoulder, the left side of the neck and the ear. One case of old duodenal ulcer presented nearly the entire array of the above localizations of the pain. In one case an operation was done for supposed gallbladder trouble, but no stones were found, merely torpid chronic pancreatitis, and it was learned then, too late, that the man had had pain in both scapulas. A few weeks after the operation, pressure on the lumbar vertebrae induced pain. The lumbar pain is more instructive than pain in the stomach region, as the latter may occur with various affections. In the sixth case reported the pain was more on the right side; the first and second lumbar vertebrae were tender, and a very painful point on pressure was found under the twelfth rib close to the spine. Necropsy revealed a cancer in the head of the pancreas.

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151 *Direct Transfusion of Blood. R. Ingebrigtsen.
152 *Operative Removal of Emboli in the Arm. J. Nicolaysen.
153 *Disease of the Ductless Glands. (Bidrag til de endokrine organers klinik.) L. Dedichen.
154 *Syphilis and Tuberculosis. H. Sundt.

151. **Direct Transfusion of Blood.**—Ingebrigtsen tabulates fifty cases with all the data, as compiled from the literature, in order to acquaint the profession in Norway with the advantages and the technic of Crile's method of direct transfusion of blood. His list includes articles on the subject in The Journal. He classifies the cases according as the transfusion was done for a constitutional hemorrhagic tendency, hemorrhage from the digestive tract, postoperative and septic anemia or puerperal or other uterine hemorrhage or pernicious anemia. In the six cases in this latter group the results were not especially encouraging. The transfusion in thirteen cases rescued the patients from imminent death. He also gives the minute details of a case in his own experience in which a girl of 8 had lost so much blood from uncontrollable epistaxis that the heart was scarcely able to keep beating. During the transfusion the pulse dropped from 120 to 86 and the child promptly recuperated. The only pathologic finding in the blood is the scarcity of blood platelets; the symptoms observed at the time and during the months that followed suggest a tendency to chronic purpura and the prognosis is reserved although the transfusion can be repeated at need in case there is further trouble from the hemorrhagic diathesis. During the year since she has had one attack of slight hematuria and her lips have bled a little at times.

152. **Operative Removal of Embolus in Both Arteries in the Arm.**—In Nicolaysen's case the heart seemed to be sound but pains in the fingers of the right hand, preceded for a few months by occasional numbness, indicated obstruction of the circulation. The pain grew more serious and the second week the diagnosis of embolism was beyond question. The embolus was supposed to be at its usual site, the bifurcation of the brachial artery. It was exposed under local anesthesia but no traces of an embolus could be found here nor in the upper half of the radial or ulnar arteries. If the diagnosis of embolism was correct, there must be two emboli, one in the radial and one in the ulnar artery, and when the fingers began to show signs of gangrene, three days after the other operation, the lower half of the ulnar artery was exposed and was seen to be bulging over a 2 cm. stretch; pulsation was evident above but none below this bulging portion. An incision 1.5 cm. long was made and the embolus protruded at once and was readily extracted whole. The interior of the vessel seemed normal, and pulsation became manifest below at once after the embolus had been extracted. A week later the radial artery was exposed and the embolus was removed in the same way only that it was twice as long as the first and broke while it was being taken out, and the lower part had to be scooped out. The circulation returned at once in the hand; there was no further pain and the radial pulse was good when last inspected, two months later. It is often a difficult matter to locate the embolus exactly, and the artery often has had to be exposed at several points before the right place was found. According to the experiences on record, it seems as if thirteen hours' obstruction of the circulation is the limit for possible recuperation after complete obstruction. But in Nicolaysen's case the vessel walls did not seem to have been damaged by the distention from the emboli although nineteen days had elapsed after the first symptoms before they were both extracted. The emboli were also found quite loose, not adherent at any point to the vessel wall. His patient was a man of 52, previously healthy. Angiosclerosis is accepted as the fundamental cause for the embolism; the heart is apparently normal.

153. **Disease of the Ductless Glands.**—This address describes the leading affections for which one or more of the ductless glands are now regarded as responsible, citing typical instances of each, with eighteen illustrations.

154. **Syphilis and Tuberculosis.**—Sundt quotes Calot to the effect that it would be better if physicians in charge of lung sanatoriums would think oftener of syphilis, and if syphilologists thought oftener of tuberculosis. Sundt is chief of the seashore antituberculosis sanatorium at Fredriksvern, and he says that in a comparatively large number of cases the patients sent to the hospital are not infected with tuberculosis or, if infected, the symptoms which led to their hospitalization were not any for which the tuberculosis was responsible. In 40 cases of hip-joint disease during the last three years, 27.5 per cent. proved to be nontuberculous as also 20.7 per cent. of 29 cases of knee diseases. In nearly all of the nontuberculous hip-joint cases, the trouble proved to be Perthes' juvenile deforming osteochrondritis, but the knee affections were nearly all of syphilitic origin, namely, in 4 out of 6. The Wassermann reaction was positive in these and also in a surprisingly large number of the patients with other affections, even in many with unmistakable tuberculous lesions. The patients were mostly children, and latent syphilis masqueraded as tuberculosis or "scrofula" in a surprisingly large number or accompanied unmistakable tuberculosis. He gives an illustrated description of several cases; in one both knees were affected after a trauma and had long been treated as for tuberculosis while destructive lesions in the palate had been treated for lupus. The tuberculin reaction was positive as also the Wassermann, and treatment on this latter clue soon restored the child to clinical health. He adds that a similar sequence was encountered soon after in another case: trauma; bilateral knee trouble, followed by a destructive affection of the nasopharynx. Other cases are cited to show that syphilis alone is able to induce the classical picture of "scrofula" in its most typical form. All these patients in this group presented merely the late manifestations of inherited syphilis; in none of them had it been recognized, but tedious treatment had been long enforced for tuberculosis or lupus. There are no absolutely reliable differentiating clinical signs; a primary localization of tuberculosis in the nasopharynx is of very rare occurrence. Tuberculous lesions generally spread superficially, the syphilitic burrow deep. The tuberculin test is most instructive when it induces a focal reaction, but this is rather an exception than the rule. When the findings are dubious, a course of treatment as for syphilis may decide the question; we know that the Wassermann may be dubious even with known syphilis. He reiterates that we must remember that not everything that subsides under potassium iodid is syphilis, and that not all that is syphilis subsides under it. Sixteen cases are reported and discussed showing the many problems presented by the coincidence or mistaken diagnoses of syphilis and tuberculosis. Since the beginning of 1915, 5 of the 22 new admissions to the sanatorium responded positively to the Wassermann test. They had been sent in with the diagnosis of tuberculous disease of the hip joint, foot, knee or face and larynx.

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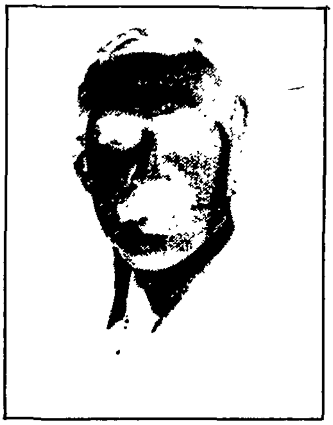
Chairman Section on Practice of Medicine



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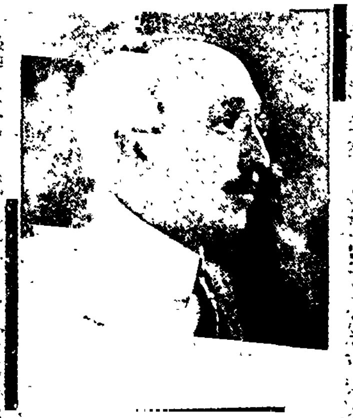

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STOMACH CARCINOMA

ITS MEDICAL ASPECTS *

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BALTIMORE

These observations are based on 184 cases of carcinoma of the stomach which have been observed in the Surgical Pathological Laboratory of the Johns Hopkins Hospital during a period of almost twenty-five years. The majority of the patients come from the surgical clinic of Professor Halsted of the Johns Hopkins Hospital. All of the cases recorded in this surgical clinic are here. A number of cases have been received from Dr. Finney's clinic at the Union Protestant Hospital. All of the cases observed in the surgical clinic of St. Agnes Hospital are included in this list, and there are a few from other hospitals.

These 184 cases may not represent the entire experience of the surgeons connected with the Johns Hopkins Hospital, but it is my opinion that they represent it sufficiently to give a clear picture of our experience with cancer of the stomach.

Fig. 1 (Case 1).—External view of the mass removed.

I have gathered from the reading of the literature that those surgical clinics, in which the total number of cancers of the stomach was larger than the total number of ulcers of the stomach, observed a larger percentage of inoperable cancer and a smaller percentage of cures among the cases in which resection of the stomach was possible, than those clinics in which the number of ulcers of the stomach exceeded that of cancer.

This is true for the cases which I have recorded.

In the Surgical Pathological Laboratory up to date our figures are as follows: stomach ulcer, 132 cases; stomach carcinoma, 184 cases. Cancer, therefore, has been more frequently observed than ulcer.

The figures as to the proportion of operable and inoperable cases of cancer are: no operation, 45 cases; exploratory laparotomy, 49 cases; gastro-enterostomy, 41 cases; total inoperable cases, 135; resection, operable cases, 49.

This demonstrates that in only 26 per cent. of the cases has the cancer of the stomach been operable, in 74 per cent. inoperable.

Table 1 illustrates the percentage of operable and inoperable cases during five-year periods from 1890 to 1915.

The first cancer of the stomach was observed in 1890. The first gastro-enterostomy for cancer was performed in November, 1892. The first exploration for inoperable cancer of the stomach was done in 1895, the first resection in 1898.

The table clearly illustrates that the experience of this clinic with cancer of the stomach really did not begin until 1905—ten years ago. From 1890 to 1905, a period of fifteen years, there were but thirty-five cases of cancer of the stomach, of which nine, or 25 per cent., were operable. In the following five-year peoriod, from 1905 to 1910, the total number of cases increased rapidly to seventy-six, of which only twelve, about 16 per cent., were operable. More cases, therefore, of cancer of the stomach were referred to the surgeon for consultation or operation, and we observe that in twenty-one cases the inoperability was so clear than no operation was done.

Fortunately, in the next five years — from 1910 to 1915 — a distinct change has taken place. The total

TABLE 1.—PERCENTAGE OF OPERABLE AND INOPERABLE CASES

	1890-1895	1895-1900	1900-1905	1905-1910	1910-1915	Totals
No operation	1	3	8	21	12	45
Exploration	—	4	3	22	20	49
Gastro-enterostomy	2	2	2	21	13	41
Total inoperable	3	9	13	64	45	134
Resections, operable	—	3	6	12	28	49
Totals	3	12	19	76	73	183

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* Address of the President before the American Gastro Enterological Society, Baltimore, May 10, 1915.

number of cases so far is seventy-three, of which twenty-eight, or 39 per cent., were operable. These figures surely demonstrate that patients with cancer of the stomach are being recognized earlier and referred to surgical treatment at a more favorable period. The no-operation cases have decreased from twenty-one to twelve, the gastro-enterostomies from twenty-one to thirteen cases.

Here we have the first evidence of a favorable turn in events.

I have also observed that during these five years, for the first time the total number of ulcer cases was greater than the total number of cancers. These figures will be brought out more elaborately in a second paper.

Up until 1910, among twenty-one cases of resection, there have been two cures — a little less than 10 per cent. of the operable cases, or two cures among a total of 111 cases, or 1.7 per cent.

Up to the present time, among the twenty-eight cases of resection between the periods of 1910-1915, there is one patient still living in whose case it will be five years since the operation in August, 1915.

If the patients still living in this group remain well, the percentage of cures may be increased from less than 10 to more than 20 per cent.

These figures, although small, seem to confirm my impression gathered from the literature, that when the total number of ulcers of the stomach in a surgical clinic exceeds the total number of cancers, the percentage of operable cases in the latter group increases, and with this there is an increase in the number of five-year cures.

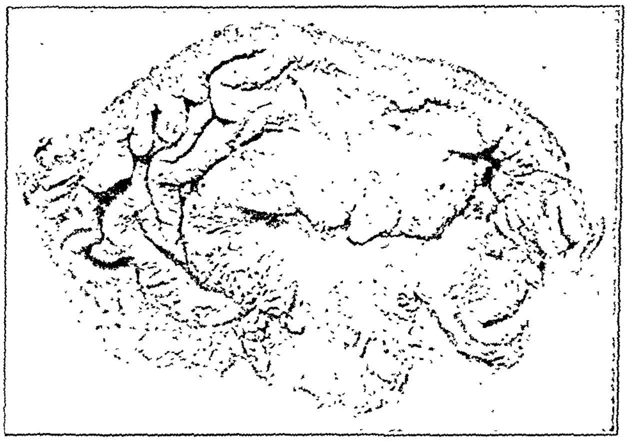

Fig. 2 (Case 1).—Surface view of the longitudinal section.

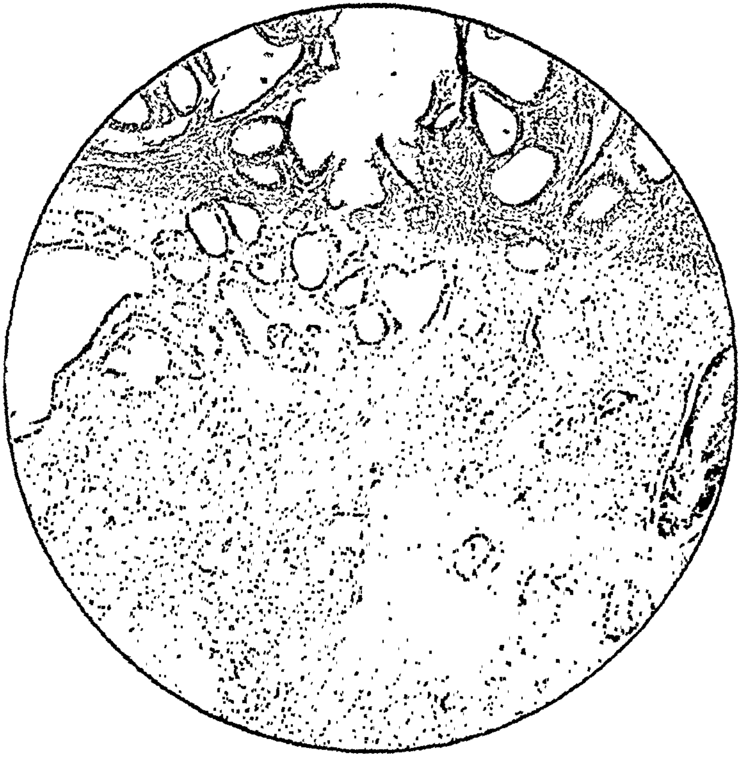

Fig. 3 (Case 1).—Adenocarcinoma.

I do not wish to enter here into the discussion of the relation of ulcer to cancer of the stomach, but the figures of these observations are very suggestive. At least they suggest a definite practical way by which the number of cures of cancer of the stomach may be increased.

Table 2 attempts to illustrate the relation of the duration of the disease to the operability of the cancer. Of course, in computing a table of this kind there is considerable opportunity for error, but if I have made mistakes in this table, it is on the side of shortening rather than lengthening the duration of the disease. I have excluded statements such as "year, or years, of indigestion," or a history of one or more previous attacks that suggested gastric ulcer. I have taken as the duration of the disease the period of continuous symptoms. The chief symptom has been abdominal discomfort in the region of the epigastrium aggravated by eating.

Nausea, belching, vomiting, vomiting of blood, and blood in stools, loss of weight and strength, whether present or absent, has not been considered in estimating the duration of the disease. In all of these cases, discomfort of various degrees has been noted in the history, and this discomfort has always been made worse by eating solid food.

This, therefore, is a very conservative estimation of the period of continuous symptoms.

TABLE 2.—RELATION OF DURATION OF DISEASE TO OPERABILITY OF CANCER

	1 month to 3 months	3 months to 6 months	6 months to 1 year	1 year to 2 years	2 years to 5 years	Over 5 years	Totals
No operation	6	6	5	7	6	4	34
Exploration	5	10	10	10	10	1	46
Gastro-enterostomy	8	7	14	4	5	1	39
[illegible]	19	23	29	21	21	6	119
Resection, operable	8	7	8	6	9	2	40
Totals	27	30	37	27	30	8	159

These cases have been divided into six groups.

The most remarkable finding is that the percentage of operability is about the same in each period.

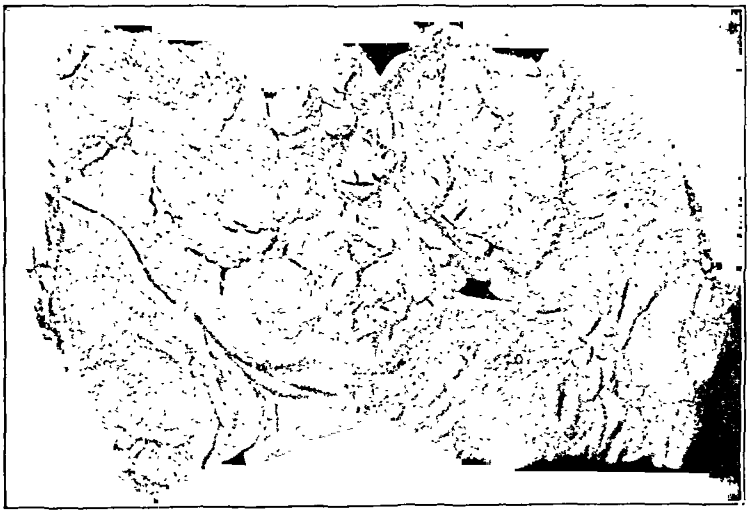

Fig. 4 (Case 2).—Surface view of the removed portion of the stomach.

If cancer of the stomach began as cancer in every instance, it should follow that with the longer period of the disease the percentage of operable cases should decrease; but this is not so.

In fact, among the cases in which the symptoms had been present only three months, the percentage of operable cases is 29. In the next period of three months it falls to 23. In the next period of six months it falls to 21. The figures 29, 23 and 21 per cent. show that with an increase in the duration of the disease, the percentage of operable cases decreases slightly; but in the next two periods, the first of from one to two years, the second from two to five years, the percentage of operable cases increased slightly, so that the figures for the cases in which the duration of the symptoms is less than three months are about the same as for those in which the duration of the disease is from two to five years—29 and 30 per cent., respectively.

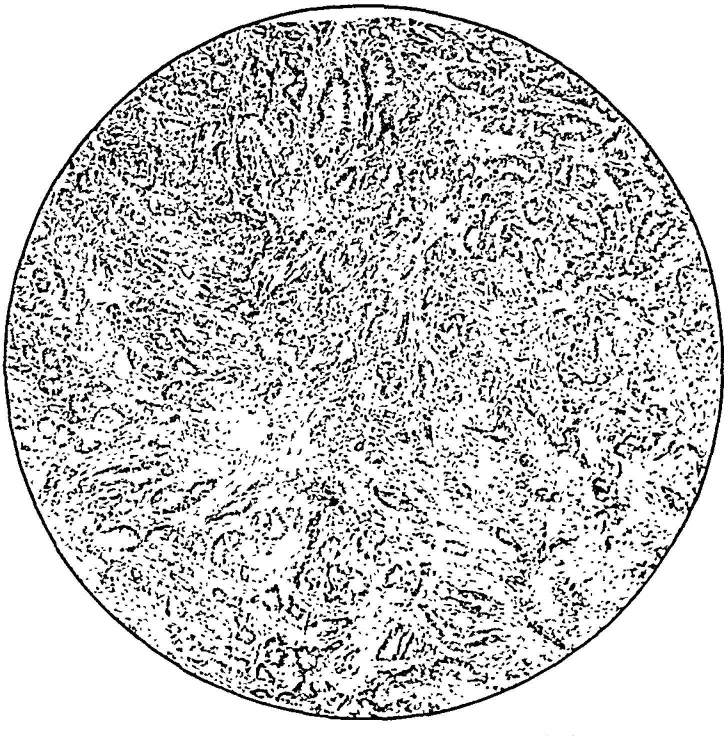

Fig. 6 (Case 2).—Photomicrograph of a section through the ulcer.

In my studies of cancer situated in other localities, such as the breast, lip, tongue, rectum, colon, etc., I have found similar percentages. We have positive evidence that cancer in some individuals grows more rapidly during the same period of time than in other individuals, so that these patients, who have what may be called acute carcinoma, are forced to seek surgical aid early after the beginning of the symptoms because of the rapid growth of the neoplasm. These cases, appearing in the columns of earlier interventions, always increase the percentage of inoperable, and decrease the proportion of permanent cures. Then, again, when we can observe pretty accurately the development of cancer in a previous lesion not malignant, we know that there is no definite time at which cancer may or does develop in the precancerous lesion.

Fig. 5 (Case 2).—Longitudinal section through stomach and ulcer.

I have thoroughly investigated this in cancer of the lip.

Now, *if a large number of cancers of the stomach* develop in a preexisting lesion not cancer, it is quite possible that we may find operable and curable cases even when the symptoms are of relatively long duration. It seems impossible with lesions of the stomach to differentiate, especially in the early months, cancer from ulcer of the stomach, and even lesions of the stomach from abdominal lesions outside of the stomach, for example, cholecystitis and gallstones, and pancreatitis.

Table 2 impresses me as evidence in favor of the conclusion that many cases of cancer of the stomach arise in lesions of the stomach which were not originally malignant, but were most probably cases of ulcer. There is other evidence in favor of this conclusion which I will bring out in a later paper.

Table 3 gives the duration of the disease and number of cases first in single months up to six, of which there are fifty-seven cases, while in the remaining groups from six months to six years and more there are 115 cases.

This table really pictures the medical aspects. All of these patients have had continuous symptoms for from one month to six years or more. It is very difficult to find out why they finally came for surgical help. Perhaps in the largest number of cases the development of almost complete stenosis of the pylorus has forced them to seek help. This as a rule, however, is a relatively late development. In one case stenosis did develop within two months after the onset of the permanent discomfort, but this patient had had indigestion a number of years.

A few of the patients have sought help within a few months after relatively slight symptoms. These patients had all been seen by good internists and had been subjected to a most rigid examination. Most of these cases have been observed in the past five years.

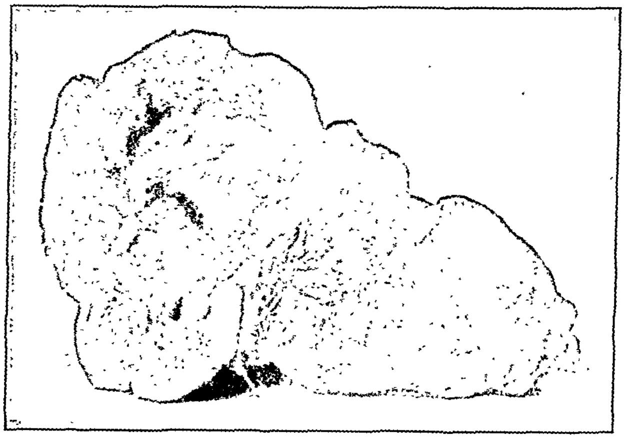

Fig. 7 (Case 3).—External surface of the mass resected.

TABLE 3.—DURATION OF DISEASE BEFORE OPERATION

Months	Cases	Years	Cases
One	2	One-half to one	48
Two	13	Two	28
Three	12	Three	15
Four	8	Four	11
Five	9	Five	5
Six	13	Six and more	8
Totals	57		115

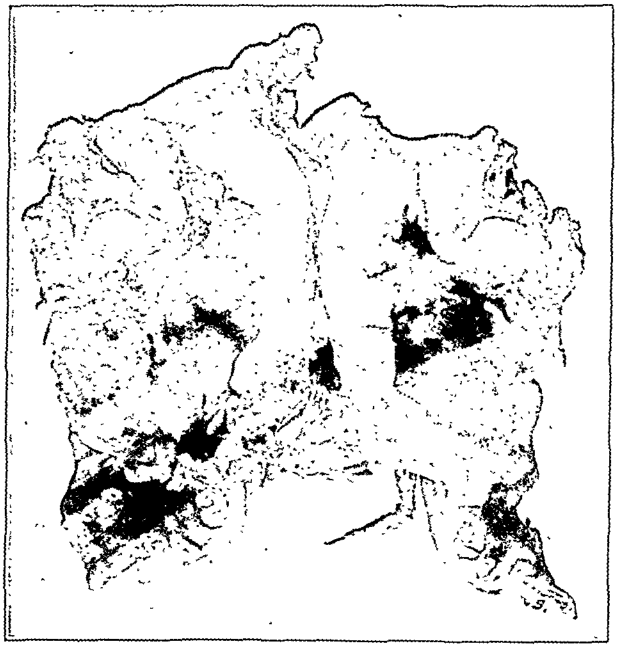

Fig. 8 (Case 3).—Longitudinal section of the mass.

This, it seems to me, is the key to the situation. Our adult population must be informed, with the highest authority behind it, that epigastric discomfort aggravated by eating solid food is a sufficient warning. They must be told that such symptoms by no means mean cancer, or disease that may ultimately end in cancer, but that with these warnings they should seek not treatment, but a thorough examination by a competent physician trained in the investigation of gastric diseases. They must be informed that restricted diet and some medicine will often give them relief; but if the disease is cancer, or something that may ultimately be cancer, such relieving treatment will only increase the danger. A thorough examination is the essential thing, and they must know that a thorough examination consists of repeated gastric analyses and the investigation with the fluoroscope or roentgenograms. No other examination will be sufficient.

Persons so educated with this correct information will undoubtedly have the courage to act. The responsibility, then, falls on the physician. I am confident that, after most careful clinical examination, repeated gastric analyses and Roentgen-ray studies, lesions of the stomach which should be subjected to surgery will not be overlooked, and that our comparative figures will show an increasing number of gastric ulcers, an increasing number of gastric ulcers with microscopic changes suggesting early cancer, an increasing number of operable masses in the stomach which are microscopically distinctly cancer, and an increasing number of permanent cures among the latter. With this earlier intervention, the mortality of gastrectomy will decrease.

When there are nonadherent masses in the stomach, in patients who are in good condition, resection of the lesion in the pyloric half of the stomach should have a mortality of 2 per cent. or less.

There is no doubt that today among trained surgeons the technic of resection of the stomach is far ahead of the opportunities to apply it at the most favorable period.

Inoperability, low percentage of permanent cures after resection, and the mortality of resection are chiefly dependent on delay. There seems no question that every one will be duly and sufficiently warned. If patient, physician and surgeon make no blunders, cancer of the stomach will lose its now appalling aspects.

The technical difficulties of resection of the stomach for cancer increase with the extent of the local growth and the localization of the growth nearer the cardia; and with this, of course, the postoperative mortality increases also. In addition, when the general condition of the patient is depressed by starvation, with the concomitant anemia and acidosis, postoperative deaths from pneumonia, embolism and anuria are more frequent.

Of the three cases apparently cured, the duration of continuous symptoms was eight months, eleven months and eleven months. In two cases, the lesion was at the pylorus, in one on the lesser curvature. These cases are as follows:

Case 1 (Pathologic No. 7307).—Specimen sent to the laboratory by the operator, Dr. Marcella Hartwig, of Buffalo. The operation was performed in 1900. After the complete pylorectomy, the duodenum was sutured to a new opening in the posterior wall of the stomach—Kocher's anastomosis.

The patient was a white woman aged 50; there had been definite continuous gastric symptoms for eight months with gradually increasing symptoms of stenosis and loss of weight. At the examination there was a movable, palpable mass in the region of the pylorus. At operation there were no adhesions and no enlarged glands. There was no difficulty in the resection and suture.

Figure 1 pictures the external view of the mass removed, and Figure 2 the surface view of the longitudinal section. One can easily see the uninvolved duodenum and stomach to each side of the tumor. The tumor is a somewhat fungous mass, but it has not infiltrated through the submucosa. Microscopically (Fig. 3) it is an adenocarcinoma.

I am informed by Dr. Hartwig that this patient died seven years after operation with symptoms of abscess of the kidney and no evidence of recurrence of the carcinoma.

Case 2 (Pathologic No. 8679).—The operation was performed by Dr. Miller, the resident surgeon of the Johns Hopkins Hospital, Jan. 4, 1908. The operation consisted of resection of the pyloric end of the stomach, closure of the duodenum and stomach, and a posterior gastro-enterostomy, a method known in the literature as Billroth's II.

Figure 4 illustrates the surface view of the removed portion of the stomach. The lesion is a large ulcer with the typical elevated edge more characteristic of cancer than ulcer. Figure 5 shows a longitudinal section through stomach and ulcer, and one can see that cancer has infiltrated to the peritoneal coat. One gland at this point was involved; other glands were not microscopically affected. Figure 6 is a photomicrograph of a section through the ulcer. The glandular arrangement is still preserved in the adenocarcinoma.

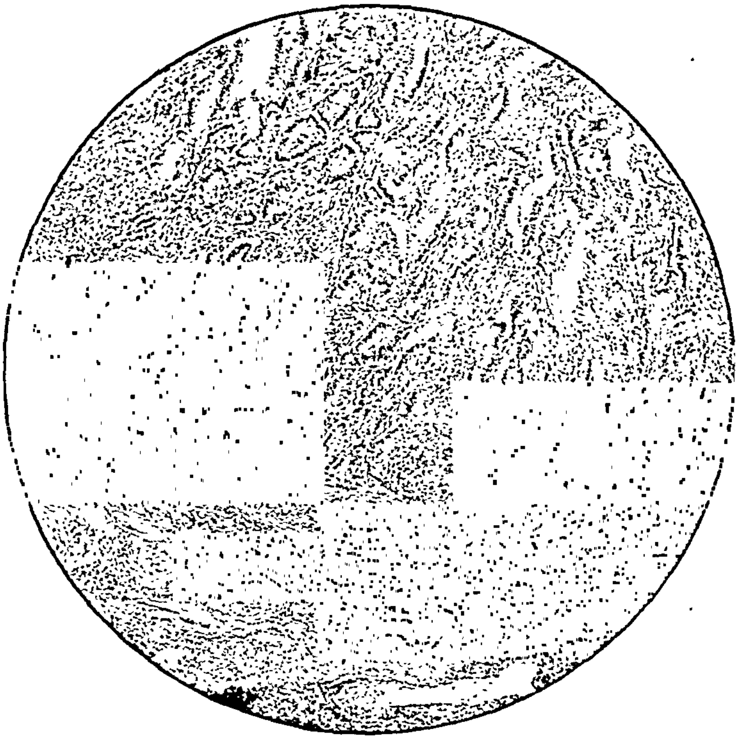

Fig. 9 (Case 3).—Fungous ulcer.

The patient was a white woman aged 43; for eleven months there had been continuous discomfort in the epigastrium, increased by eating solid food. The distress was so great that she consulted a physician within five months. On restricted diet she had been more comfortable. The patient had vomited three times—the first attack of vomiting was two months before admission. With her inability to eat without discomfort she had lost weight and strength. At the examination the most conspicuous finding was a mass; gastric lavage demonstrated residuum, but no blood. The residuum was rather slight. Hydrochloric acid was absent, total acidity 13. Apparently it was the palpable mass which urged operation.

At operation the mass occupied the lesser curvature. It was freely movable, and there were no adhesions.

This patient lived in comfort about seven years. She was readmitted to the Johns Hopkins Hospital in February, 1915, with a huge pelvic tumor of which there had been symptoms but a few months. This patient died within a few weeks in the hospital, and the necropsy demonstrated a primary adenocarcinoma of the body of the uterus with involvement of the ovaries, broad ligaments and glands. There was no evidence of carcinoma in the area of the stomach, and every evidence that the present disease had no relation to the cancer of the stomach removed seven years before.

Case 3 (Pathologic No. 10763).—In this case the operation was performed at St. Agnes Hospital by Dr. Bloodgood, Aug. 11, 1910. There was a movable, nonadherent mass at the pylorus. After the simple resection the duodenum was sutured to the stomach after Kocher's method.

Figure 7 shows the external surface of the mass resected; the normal duodenum and stomach on each side of the tumor are clearly seen.

Figure 8 pictures a longitudinal section. The tumor begins at the pylorus; it is a somewhat fungous ulcer, and has not infiltrated through the peritoneum, as shown in Figure 9, a photomicrograph.

This patient was a white man aged 55; his symptoms began eleven months before operation; at first simple discomfort in the epigastrium after eating. In three months there were definite symptoms of stenosis, recognized by his physician, Dr. Wertz of Hagerstown, Md., but the patient refused operation until August. At that time he was greatly emaciated, anemic, and the stenosis was almost complete. Fortunately the Kocher anastomosis worked well, and the patient could be fed immediately after operation.

At this time, May, 1915, there is no evidence of recurrence.

Albucasis — 1000 A.D.—Albucasis insisted that for successful surgery a detailed knowledge of anatomy was, above all, necessary. He said that the reason why surgery had declined in his day was that physicians did not know their anatomy. The art of medicine, he added, further required much time. Unfortunately, to quote Hippocrates, there are many who are physicians in name only, and not in fact, especially in what regards surgery. He gives some examples of surgical mistakes made by his professional brethren that were particularly called to his attention. They are the perenially familiar instances of ignorance causing death because surgeons were tempted to operate too extensively. His description of the procedure necessary to stop an artery from bleeding is an interesting example of his method of teaching the practical technic of surgery. Apply the finger promptly on the opening of the vessel and press until the blood is arrested. Having heated a cautery of the appropriate size, take the finger away rapidly and touch the cautery at once to the end of the artery until the blood stops. If the spurting blood should cool the cautery, take another. There should be several ready for the purpose. Take care, he says, not to cauterize the nerves in the neighborhood, for this will add a new ailment to the patient's affection.—Walsh: Makers of Medicine.

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These various findings were most interesting and led promptly to a more careful examination [illegible] similar cases in [illegible] we had been [illegible] ating for so-called pyloric obstruction, supposedly due to ulcers of gastric origin. The investigation showed that a high percentage of the ulcers believed to be pyloric were in reality in the first portion of the duodenum.

Fig. 1.—Types of pyloric vessels in relation

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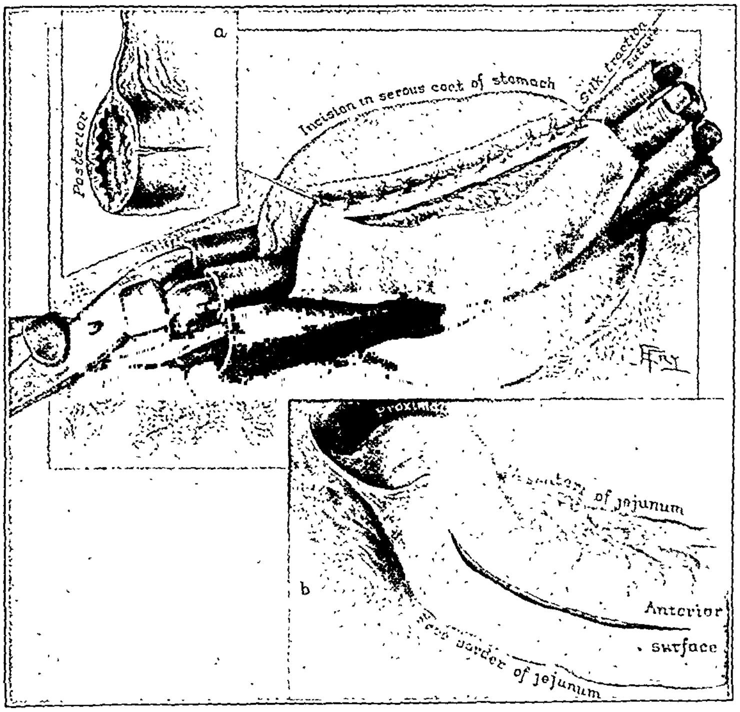

Fig. 2.—Interrupted seromuscular sutures, posterior row, in place. Peritoneal and muscular coats of jejunum incised to mucosa. Dotted line on stomach indicates line of incision. *a*, line of incision in jejunum, not opposite mesentery but on the upper left side. *b*, line of incision in jejunum.

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It is interesting to speculate as to what diagnoses were made in the cases of duodenal ulcers prior to our present knowledge. It is altogether probable that a large percentage of chronic duodenal ulcers were not diagnosed at all. Some of them were believed to be gastric ulcers.

A high percentage of acute perforations were believed to be acute appendicitis since the fluids quickly gravitate into the right iliac fossa, and the appendix as well as the surface of the intestine early shows marked evidences of peritonitis. Ten years ago it was taught that an appendix apparently normal in its mucosa, under certain conditions, permitted bacteria to pass into the peritoneal cavity, causing septic peritonitis. The mistake was often not discovered even at operation and the death of the patient came after extensive peritoneal involvement had obscured the site of perforation in the duodenum sufficiently to prevent recognition. The experience of the Massachusetts General Hospital as reported by Codman[9] is instructive in this respect.

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CHRONIC DUODENAL ULCER *

WILLIAM J. MAYO, M.D.
ROCHESTER, MINN.

In the presidential address delivered before the American Surgical Association in 1900, Dr. Robert F. Weir[1] called attention to the surgical possibilities of ulcer in the duodenum. In his masterly presentation of the subject he dealt chiefly with the acute cases, especially those in which perforation had taken place. Within the following year the condition was recognized in examining patients in our clinic and several patients were operated on. The previous history in each case was so distinctive as to attract attention at once. Before the perforation occurred, the patients suffered from intermittent digestive disturbances followed by intervals, sometimes of great length, in which they were fairly well. The symptoms complained of were characteristic — hyperacidity, hypersecretion, hunger pain, food relief and, in the later stages, the phenomena which accompany obstruction.

These various findings were most interesting and led promptly to a more careful examination in similar cases in which we had been operating for so-called pyloric obstruction, supposedly due to ulcers of gastric origin. The investigation showed that a high percentage of the ulcers believed to be pyloric were in reality in the first portion of the duodenum.

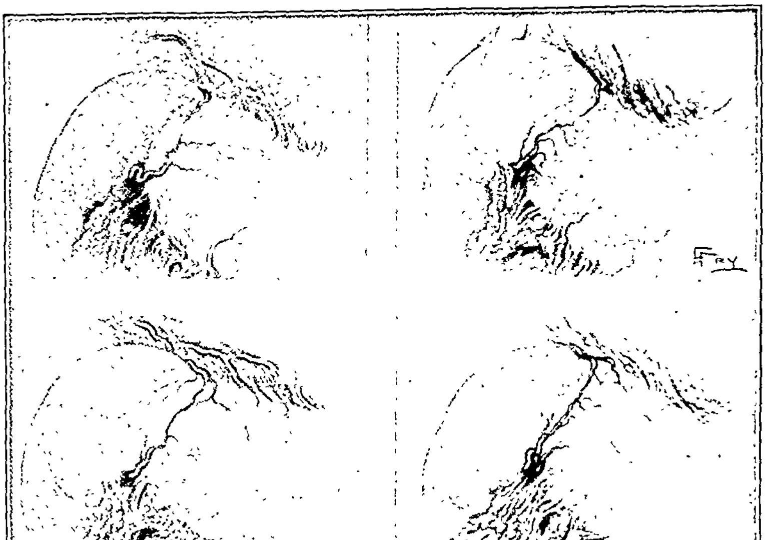

Fig. 1.—Types of pyloric vessels in relation to the location of the pylorus.

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Our work during this early period was greatly stimulated by the splendid contributions of Robson and Moynihan, whose observations and results agreed with those in our clinic. The fact that surgeons working simultaneously in different countries should come to the same conclusion seemed very significant.

The idea that duodenal ulcer was more frequent than gastric ulcer was slowly evolved. Surgeons investigating conditions at the operating table were more readily convinced than physicians working along the lines of specialized gastro-enterology. A prominent specialist in gastro-intestinal diseases once asked, "How is it possible that you, a general surgeon, see so many of these cases while I who am devoting all my time to this work see so few?" I could only answer, "The thickness of the abdominal wall prevents you from seeing them."

Postmortem statistics have been and are still quoted in opposition to the view that duodenal ulcer is a frequent condition. For example, the statistics of Rokitansky,[3] master pathologist, were published in 1839. Brinton,[4] whose statistics are so readily quoted on every occasion, published his work in 1857. These did not represent Brinton's personal observations, but what he had gleaned from postmortem records obtained from diverse sources previous to that time and did not necessarily represent facts but their interpretation in the light of the time when the statistics were compiled. The statistical method of settling such questions is none too good at best and when the statistics are from fifty to seventy-five years old they can hardly be accepted as representing modern thought on the subject of gastric and duodenal ulcers.

The methods of clinical study have been even more chaotic. For example, compare the clinical diagnoses of gastric ulcer on admission to the hospital with the necropsy findings ten years ago. Take three hospitals in Philadelphia: University Hospital, clinical diagnosis of gastric ulcer 0.48 per cent.; Pennsylvania Hospital,

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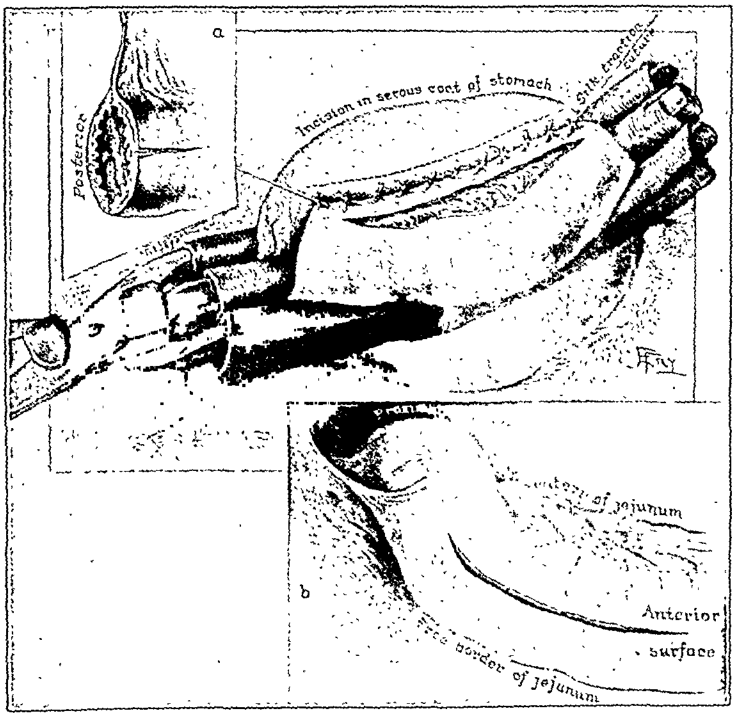

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I shall not go into the question of the etiology of duodenal ulcer. It is quite evident that the same causes which produce gastric ulcer produce duodenal ulcer. The thrombosis and embolism theory, the nerve theory, the bacterial theory, the mechanical theory, and the erosion theory all have their advocates. The latest recruit to the infection theory is Rosenow,[10] whose splendid investigation as to the relation of the streptococci in the terminal capillaries of the mucosa to ulcer of the stomach and duodenum is most illuminating. This theory is borne out by the edematous inflammatory character of the ulcerous duodenum found when operating during an exacerbation of the symptoms and further by the fact that following acute perforation of an ulcer, if the patient is so fortunate as to recover, the ulcer heals as though some harmful agent had been extruded. If later other symptoms are manifested they are due to the obstruction or deformity which follows in the wake of ulcer.

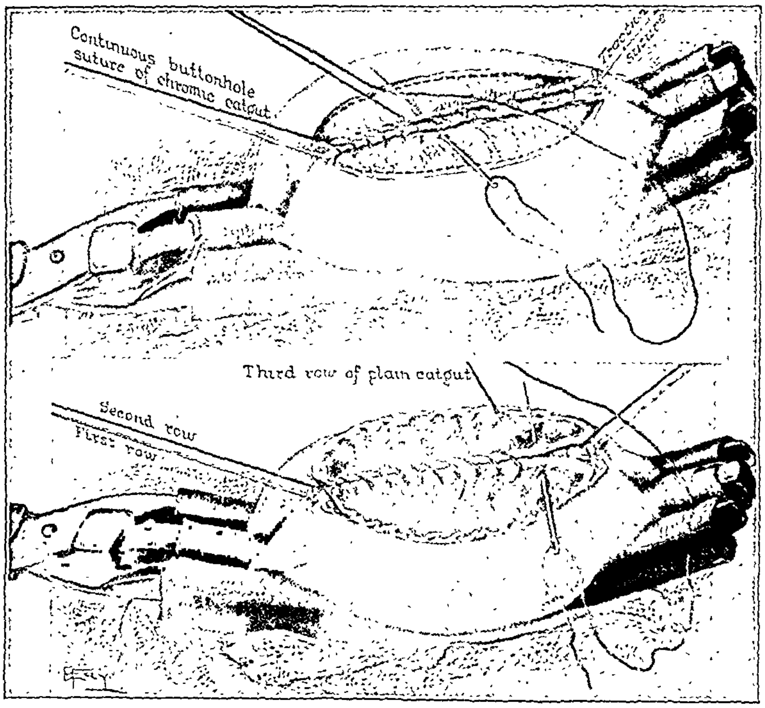
Continuous buttonhole suture of chromic catgut
Third row of plain catgut
Second row
First row

Fig. 3.—Upper figure shows through and through catgut suture of posterior wall before opening the mucosa. Dotted line shows where mucosa is divided. Lower figure shows mucosa flaps stitched across with catgut suture.

One possible source of injury to the mucosa of the lesser curvature of the stomach and duodenum which may have some bearing on the etiology of peptic ulcer and also to cancer of the stomach is hot drinks. Solid food is masticated in the mouth and then passes into the fundus of the stomach where it is retained during the early period of gastric digestion. If the food is very hot, it is more or less cooled in the act of mastication, but drinks are taken into the stomach much hotter than can be borne in the mouth. Anyone taking the trouble to experiment will probably find they have been in the habit of swallowing fluids much too hot to be held in the mouth comfortably. The stomach and duodenum give little immediate indication that the fluid is too hot. These hot fluids are carried rapidly along the lesser curvature into the duodenum to the exact situation in which the majority of ulcers are found, possibly removing the protective mucus which prevents autodigestion and which may result in chronic irritation. Extremely cold drinks may have the same effect.

The experiments of Jefferson[11] as to the canalis gastricus have shown that liquids, when taken in considerable quantity, pass rapidly along the lesser curvature and into the duodenum without mixing with the food mass in the fundus.

The pyloric veins are most valuable in differentiating gastric from duodenal ulcer. A short, stumpy vein comes out from above and another from below the pylorus, sometimes sending a small branch across the top of the pylorus (Fig. 1). These veins are quite unlike the vessels of other situations of the stomach and when their peculiarities have once caught the eye they serve readily to locate the pyloric ring. Gastric ulcer in the pyloric end of the stomach is not often mistaken for duodenal ulcer but for cancer, as in this situation a tumor usually forms in connection with the ulcer as the result of muscular hypertrophy and edema.

The large majority of ulcers of the duodenum are located in the first 1½ inches, more often on the anterior wall. A number begin just below the pylorus and at first glance they appear to involve the pyloric ring, especially when extensive and obstructive but careful examination will show that they are duodenal. The deeper, larger ulcers and those which bleed excessively are more often situated on the posterior wall, the callus sometimes extending into the head of the pancreas. Such ulcers may be concealed from view underneath the pyloric ring, but seldom involve the gastric mucosa. When an ulcer is situated on the posterior wall, a superficial contact ulcer will usually be found opposite on the anterior wall. The mucosa of the duodenum is thin, smooth and granular, and chronic duodenal ulcers may not therefore have the characteristics we have learned to expect from experience with gastric ulcers. I have excised a number of duodenal ulcers in which there was considerable scar tissue in the submucosa and muscularis and marked evidence of localized peritonitis; yet the actual ulcer was a mere slit or dimple surrounded by an eroded, discolored, "moth-eaten" patch of mucosa. This is the type of ulcer which occurs on the anterior wall unless there is a corn-like thickening over the top of the ulcer, in which case it will have the size, depth and callus characteristic of gastric ulcer.

Ulcers may exist in the duodenum at any point above the opening of the common duct or even down as low as the opening. I have observed three cases marked by repeated hemorrhage in which the ulcer involved the papillae of the common duct on its superior surface.

A high percentage of duodenal ulcers perforate the mucosa and muscularis to the peritoneal coat. These are classified as chronic perforations; complete perforation having been prevented by thickening of the peritoneum or adhesions to the gallbladder, omenta, suspensory ligament of the liver, etc. Many times an acute perforation actually takes place with the recovery of the patient, since the opening may be small, allowing but little fluid to escape and that fairly sterile. In such cases patients have a localized peritonitis with extreme pain lasting for several days and then make a spontaneous recovery. I have explored a number of such cases during an attack of acute localized peritonitis and have discovered the duodenal opening which had been spontaneously closed by adhesions. Occasionally absorption of the escaping products is incomplete and a phlegmon, usually underneath the liver, forms which can be opened and drained. If this is done gently the original source of leakage in the duodenum will probably not be reopened.

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[10] Rosenow, E. C.: Production of Ulcer of the Stomach by Injection of Streptococci, The Journal A. M. A., Nov. 29, 1913, p. 1947.

[11] Jefferson: Jour. Anat. and Physiol., 1915, xlix, 165.

The symptomatology of duodenal ulcer is so well known that in the typical cases failure of diagnosis should not occur. The hunger pain and food relief, hyperacidity and hypersecretion and, in the later stage, obstructive phenomena, leave little doubt as to the character of the lesion. Failure in differential diagnosis may be due to accompanying diseases of the gallbladder, appendix, etc., which occur in about 16 per cent. In our experience, actual hemorrhage takes place in somewhat less than 25 per cent. of the cases, but if one is satisfied to ask the patient questions and accept doubtful evidence as to black stools, etc., this percentage can be increased to as much as 70 per cent. We have not found occult blood a reliable symptom and do not attach a great deal of importance to it. I say this with some reluctance, since many diagnosticians for whom I have the highest respect believe that it is a diagnostic sign of very great importance.

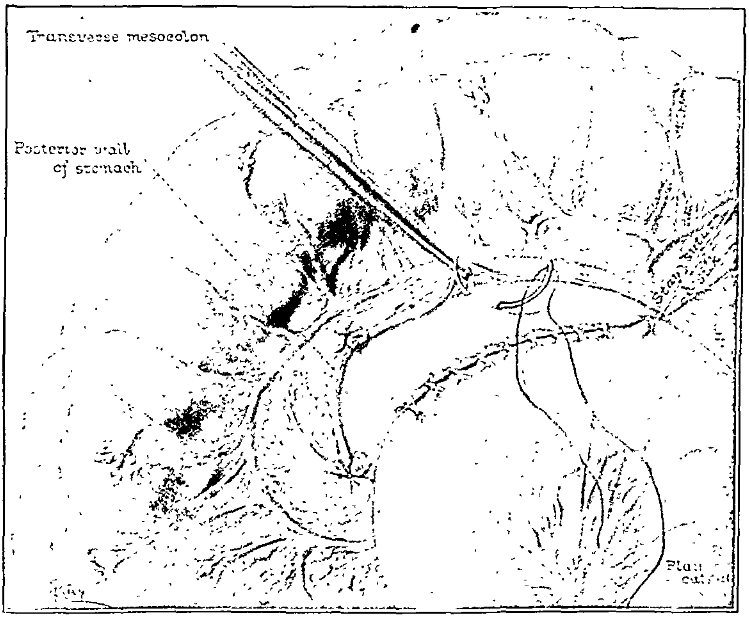


Fig. 4.—Stay suture distal to the anastomosis and suture of margin of the opening in mesocolon to stomach. Note that stomach hangs below transverse mesocolon making a funnel.

The Roentgen ray is a very important and increasingly valuable means of diagnosis. By this means, when taken in conjunction with the clinical history, a diagnosis can be made in approximately 95 per cent. of cases.

The physical examination, including the use of the stomach tube, is important as evidencing hypersecretion and food retention, tumor, visible peristalsis, etc. Laboratory diagnosis, that is, microscopic and chemical examination of gastric contents, has some value but is largely of a corroborative nature and has been very greatly overestimated. Dividing into four groups the means of diagnosis, the history is of first importance, the Roentgen ray second, the physical examinations (stomach-tube findings, etc.) third and the purely laboratory findings a poor fourth.

One of the most curious phenomena connected with duodenal ulcer is its intermittency. The disease usually begins in young males (eighty-three males to seventeen females); after a period of some weeks of symptoms there is a cessation more or less complete and the patient goes for months without any knowledge of his ailment. Then the symptoms recur and after a time the usual remission takes place. This may go on for years until finally obstruction supervenes and the symptoms become more or less constant, although the gastric muscles may by hypertrophy become competent to overcome considerable obstruction, in this respect acting quite like the heart in valvular disease — periods of competency followed by periods of incompentency.

A study of the history of the natural course of chronic duodenal ulcer makes the prospects of permanent cure by medical means open to question. I have seen a number of so-called "medical cures" and have not been able to determine that there was any material difference between them and the spontaneous remissions. The ulcer, as far as Roentgen-ray evidence is concerned, shows no physical change in the period of improvement. In operating during this period, no sign of healing is found. By means of alkalies, restricted diet, frequent feeding, largely milk and cream, whereby chemical corrosions are controlled, patients with chronic duodenal ulcers are relieved; a remission of the symptoms being secured and maintained for an indefinite length of time. But such patients cannot be looked on as cured unless they can go back, without a recurrence of trouble, to the regular diet of the grade and character obtainable by the average man. As a matter of fact, relapse usually takes place under such circumstances and the dangers of perforation and hemorrhage are ever present.

Other things being equal, after failure of reasonable medical treatment, patients with unhealed chronic duodenal ulcer should be considered surgically. To evade operation in the unhealed case is, I believe, a risk not commensurate with the value received from operative interference. No class of patients gives better results following surgical intervention.

A recurrence of symptoms after operation is most often due to defective surgical technic, usually a gastrojejunal-stitch ulcer occurs caused by the use of continuous silk or linen threads. Such sutures may hang, causing ulceration and trouble for months or years. The stitch ulcer produces the same symptoms as the original ulcer: hunger-pain, food-relief, hypersecretion, and hyperacidity. I have reason to believe that many of the poor results following gastro-enterostomy are the sequelae of sutures which have finally passed out.

The clinical course of stitch ulcers is quite typical. The patient is operated on for chronic duodenal ulcer and gastro-enterostomy is done. He is relieved and for from three to six months feels fairly well; he then begins to develop the former symptoms and it is supposed that the original ulcer has recurred. In the course of some weeks or months, about the time the suture finally separates, gradual improvement takes place.

Recently a large number of articles have appeared dealing with the necessity of closure of the pylorus to prevent food from passing down into the ulcerated area. The evidence as to the necessity of this procedure is not clear. Stitch ulcers and improperly selected patients are responsible for the recurrence of the symptoms in most instances. We have not found that the patients in whom the pylorus was blocked have in any way had results superior to those in whom it was not blocked following simple gastro-enterostomy. If perforation is impending I think it wise to block the pylorus and cover the ulcer; if there have been hemorrhages this should be done and the vessels in the vicinity of the ulcer carefully tied. But there is no evidence that the routine blockage of the pylorus is advisable or necessary, and if it cannot be done without additional risk, I think perhaps it had better be left undone.

The enthusiastic operator who has made gastro-enterostomies because of symptoms or for supposititious ulcers which he believed he could see or feel has greatly harmed gastric and duodenal surgery. In our clinic more than 100 unnecessary gastro-enterostomies have been cut off because of secondary complications such as chronic bile regurgitation, etc. Fourteen of these were our own patients operated on in the early period when it was not understood that a patient should not be operated on unless the ulcer could be actually demonstrated. At the time of these secondary operations careful search did not reveal evidence that ulcer of the stomach or duodenum had ever existed. Now that blockage of the pylorus has become popular, an alibi is established in advance inasmuch as the scar made by the ultimate passage of the suture into the gastro-intestinal lumen creates a reasonable doubt as to whether the scar is due to healed ulcer or to the thread. In other words, pyloric blockage often establishes false testimony.

In the large majority of cases gastro-enterostomy is the ideal operation for duodenal ulcer with or without infolding the ulcer (Figs. 2, 3, 4). In selected cases, excision of the ulcer in conjunction with the gastroduodenostomy of Finney is the operation of choice. In those rare cases in which true jejunal ulcer forms following gastro-enterostomy, the jejunal ulcer should be excised, the stomach and jejunal openings closed and the Finney operation done after cutting off the gastro-enterostomy. Following surgical intervention, the patient should be under good medical advice until permanent cure is assured.

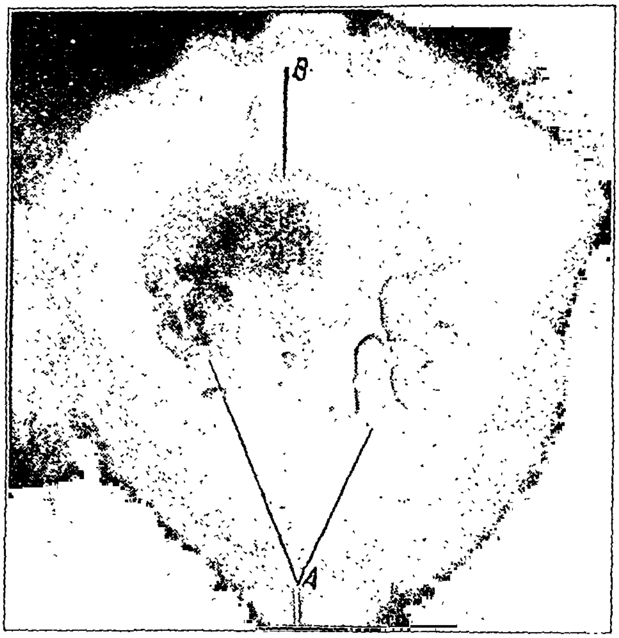
VESICULAR ALBUMINURIA

WILLIAM T. BELFIELD, M.D.

Professor of Genito-Urinary Surgery, Rush Medical College

CHICAGO

For days after the seminal vesicles are filled with collargol solution through an incision into the vas (vasostomy), this black substance appears in the urine, for the peristaltic contractions of the vesicles press their contents into the prostatic urethra and thence into the bladder. If the patient pass the first half-ounce of urine into a small glass, the bulk of the urine into a large glass and the last ounce or thereabouts, into a third, it will be seen that the first half-ounce has the largest percentage of collargol (deepest color), the second the least, and that the third is usually intermediate in blackness. It is obvious that not merely collargol, but also the natural contents of the vesicles in health and disease, must at times be discharged by peristalsis into the prostatic urethra, thence to flow into the bladder and be voided with the urine. The vesicular contents normally include nucleoproteins, albumoses and globulins, all of which are precipitated by nitric acid, though only the globulins are coagulated by heat. While the percentage of these in the urine is commonly minute, yet it becomes at times sufficient to give distinct precipitates by the usual tests. Diseased vesicles furnish globulin, albumin, pus and blood, all of which may be diffused through the urine in the bladder.



Roentgenogram made an hour after filling with collargol solution, and fifteen minutes after bladder had been irrigated and then filled with air. *A*, seminal vesicles; *B*, pool of collargol solution in the bladder, expressed from the vesicles by peristalsis.

How shall we distinguish vesicular from renal albuminuria? Not by the presence or absence of spermatozoa, as was formerly supposed, because the vesicular contents are albuminous even when the sperms are imprisoned in the testicles by bilateral epididymitis or vasectomy. Catheters in both ureters furnish urine free from vesicular contamination, but ureter catheterism is not generally practiced. The three-glass method, already described, furnishes a simple means of differentiation: Albuminous substances furnished to the urine by the vesicles are unevenly distributed, the precipitates by heat and nitric acid being distinct in the first half-ounce and the last ounce of urine, less distinct or even absent in the intermediate ounces, while albumin of renal origin is evenly diffused throughout.

In a recent case of intermittent albuminuria, it was found that the first half-ounce and last ounce of urine usually contained albumin and microscopic blood, while the intermediate portion was commonly free from both. The emitted semen contained macroscopic blood. Catheters introduced into the ureters yielded urine free from blood and albumin. During several months his prostate and vesicles were frequently massaged by Dr. Wishard in Indianapolis and by myself, without appreciable effect. In June, 1914, I irrigated his right vesicle with peroxid through a vasostomy, and filled it with collargol solution; during the ensuing eleven months his semen has been free from blood and his urine from albumin.

Peristalsis of the vesicles, hitherto unrecognized, reveals a possibly frequent source of transient albuminuria without renal disease.

32 North State Street.

THE EXCRETION OF MERCURY BY THE GASTRIC MUCOUS MEMBRANE *

C. C. LIEB, M.D.
AND
G. M. GOODWIN, M.D.
NEW YORK

It has been known for a long time that mercury may be recovered from the stomach washings of patients who are under the systemic influence of this metal. The presence of mercury in the gastric contents does not depend on the method by which the drug is administered. So far as we have been able to determine, no attempt has been made to ascertain the mechanism whereby the mercury finds its way into the stomach contents. There are at least three obvious explanations. In the first place, the mercury excreted by the salivary glands may be swallowed with the saliva, or it may be that the mercury is excreted in the upper part of the duodenum and regurgitated into the stomach. In either case, the presence of the metal in the gastric contents may be regarded as a contamination. Finally, it is possible that the mercury is actually excreted by the gastric mucous membrane. Whichever explanation is correct, the presence of mercury in the gastric lumen is important, for when the drug is passed on into the small intestine, it is again absorbed.

This cycle of absorption, excretion and reabsorption may explain the persistent systemic action of mercury, and probably accounts for the prolonged stay of the metal in the organism. On the other hand, the cycle may be a real danger in patients who have taken large doses of mercuric chlorid either accidentally or with suicidal intent. In fact, Lambert and Patterson[1] have recently urged the importance of gastric lavage as part of the routine treatment of mercuric chlorid poisoning.

At the suggestion of Professor Lambert, we undertook to determine whether the mercury found in the stomach is swallowed with the saliva or whether it is excreted by the gastric glands. The importance of clearing up this point is evident, for if mercury is of salivary origin, lavage is not so essential a part of the treatment, since the entrance into the stomach may be prevented by directing the patient to eject his saliva. If the mercury, however, is actually excreted by the gastric mucous membrane, lavage is of the utmost importance.

Three series of experiments were carried out.

In Series 1 rabbits were used. The animals were kept in clean cages for twelve hours before they were anesthetized with ethyl carbamate. The esophagus was tied off above, and a small rubber catheter was passed into the stomach through a small incision in the gullet and tied into place. By this procedure, contamination of the stomach contents by mercury of salivary origin was impossible. The mercury, in the form of mercuric chlorid, was injected subcutaneously. The animals were then placed on an electric pad and surrounded by hot water bottles. At the end of a given period the rabbits were exsanguinated and the stomach was excised and opened. The contents were removed and the mucous membrane washed with Ringer's solution. The stomach contents and the washings were then subjected to Vogel's test for mercury.[2] The results are shown in Table 1.

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In Series 3, decerebrated cats were again used, but the duodenum as well as the esophagus was tied off. The mercuric chlorid was injected slowly into the jugular vein.

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In a number of cases the urine and stools were also examined for mercury. The metal was found in the urine within two hours after its administration and within four and one-half hours in stools.

From these experiments it seems probable that mercury is excreted by the gastric mucous membrane, and that gastric lavage is an essential part of the treatment of mercurial poisoning.

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* From the Department of Pharmacology of the Columbia University, College of Physicians and Surgeons.

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[2] Vogel, K. M., and Lee, O. I.: Detection of Mercury in the Excretions, THE JOURNAL A. M. A., Feb. 14, 1914, p. 532.

or years. The stitch ulcer produces the same symptoms as the original ulcer: hunger-pain, food-relief, hypersecretion, and hyperacidity. I have reason to believe that many of the poor results following gastro-enterostomy are the sequelae of sutures which have finally passed out.

The clinical course of stitch ulcers is quite typical. The patient is operated on for chronic duodenal ulcer and gastro-enterostomy is done. He is relieved and for from three to six months feels fairly well; he then begins to develop the former symptoms and it is supposed that the original ulcer has recurred. In the course of some weeks or months, about the time the suture finally separates, gradual improvement takes place.

Recently a large number of articles have appeared dealing with the necessity of closure of the pylorus to prevent food from passing down into the ulcerated area. The evidence as to the necessity of this procedure is not clear. Stitch ulcers and improperly selected patients are responsible for the recurrence of the symptoms in most instances. We have not found that the patients in whom the pylorus was blocked have in any way had results superior to those in whom it was not blocked following simple gastro-enterostomy. If perforation is impending I think it wise to block the pylorus and cover the ulcer; if there have been hemorrhages this should be done and the vessels in the vicinity of the ulcer carefully tied. But there is no evidence that the routine blockage of the pylorus is advisable or necessary, and if it cannot be done without additional risk, I think perhaps it had better be left undone.

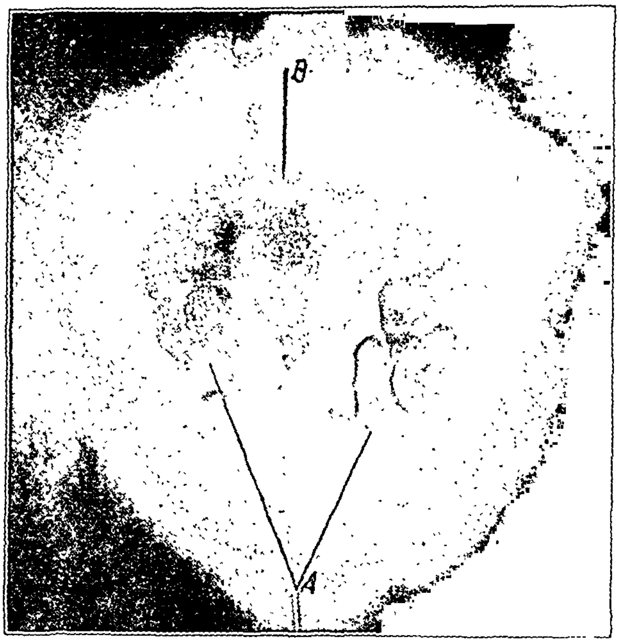
The enthusiastic operator who has made gastro-enterostomies because of symptoms or for supposititious ulcers which he believed he could see or feel has greatly harmed gastric and duodenal surgery. In our clinic more than 100 unnecessary gastro-enterostomies have been cut off because of secondary complications such as chronic bile regurgitation, etc. Fourteen of these were our own patients operated on in the early period when it was not understood that a patient should not be operated on unless the ulcer could be actually demonstrated. At the time of these secondary operations careful search did not reveal evidence that ulcer of the stomach or duodenum had ever existed. Now that blockage of the pylorus has become popular, an alibi is established in advance inasmuch as the scar made by the ultimate passage of the suture into the gastro-intestinal lumen creates a reasonable doubt as to whether the scar is due to healed ulcer or to the thread. In other words, pyloric blockage often establishes false testimony.

In the large majority of cases gastro-enterostomy is the ideal operation for duodenal ulcer with or without infolding the ulcer (Figs. 2, 3, 4). In selected cases, excision of the ulcer in conjunction with the gastroduodenostomy of Finney is the operation of choice. In those rare cases in which true jejunal ulcer forms following gastro-enterostomy, the jejunal ulcer should be excised, the stomach and jejunal openings closed and the Finney operation done after cutting off the gastro-enterostomy. Following surgical intervention, the patient should be under good medical advice until permanent cure is assured.

VESICULAR ALBUMINURIA

WILLIAM T. BELFIELD, M.D.
Professor of Genito-Urinary Surgery, Rush Medical College
CHICAGO

For days after the seminal vesicles are filled with collargol solution through an incision into the vas (vasostomy), this black substance appears in the urine, for the peristaltic contractions of the vesicles press their contents into the prostatic urethra and thence into the bladder. If the patient pass the first half-ounce of urine into a small glass, the bulk of the urine into a large glass and the last ounce or thereabouts, into a third, it will be seen that the first half-ounce has the largest percentage of collargol (deepest color), the second the least, and that the third is usually intermediate in blackness. It is obvious that not merely collargol, but also the natural contents of the vesicles in health and disease, must at times be discharged by peristalsis into the prostatic urethra, thence to flow into the bladder and be voided with the urine. The vesicular contents normally include nucleoproteins, albumoses and globulins, all of which are precipitated by nitric acid, though only the globulins are coagulated by heat. While the percentage of these in the urine is commonly minute, yet it becomes at times sufficient to give distinct precipitates by the usual tests. Diseased vesicles furnish globulin, albumin, pus and blood, all of which may be diffused through the urine in the bladder.



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THE ISOLATION IN CRYSTALLINE FORM OF THE COMPOUND CONTAINING IODIN, WHICH OCCURS IN THE THYROID

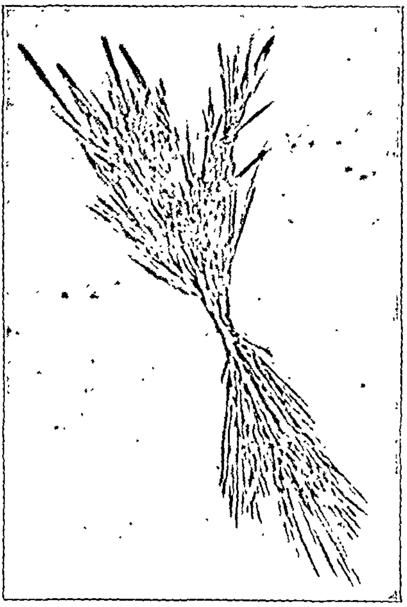
ITS CHEMICAL NATURE AND PHYSIOLOGIC ACTIVITY *

E. C. KENDALL, Ph.D.
ROCHESTER, MINN.

During the past twenty years, investigation has firmly established, among other things, the following two facts: (1) The thyroid contains some substance capable of producing marked physiologic effects, and (2) iodin is a constant constituent of normal and pathologic glands. These two facts are emphasized because most of the controversies concerning the thyroid have arisen from attempts to explain the relation between the physiologic activity and the presence of iodin.

It is obvious that no final conclusions could be arrived at until either some substance possessing physiologic activity had been isolated in pure form and shown to be a normal constituent of the gland, or until the compound containing iodin had been isolated in pure form and its physiologic activity determined.

Last December I[1] reported the separation from the thyroid of a preparation containing 60 per cent. of iodin. The present paper is a summary of the results thus far obtained. In brief, the compound containing iodin, the presence of which, as a normal constituent of the thyroid, was foretold by Baumann[2] nineteen years ago, has been isolated in pure crystalline form, and further, it has been shown that this compound is the substance in the thyroid which is responsible for the physiologic activity of the gland.[3]



Crystals of the iodin-containing compound which occurs in the thyroid.

Previous investigation has shown that the compound containing iodin is firmly held as a constituent of the thyroid proteins. Hence separation of this compound must be preceded by a breaking down of the proteins into the simpler constituents of which they are composed. Baumann attempted this hydrolysis, using 10 per cent. sulphuric acid, but no satisfactory cleavage of the molecule resulted. The hydrolysis which has been successful was accomplished with sodium hydroxid in alcohol as a medium for carrying out the process.

A large number of compounds are obtained by this splitting up of the protein, but they are separated into two groups by the addition of acid. Those compounds insoluble in acid are designated Group A, and those soluble Group B.

The total iodin in the gland is found to be divided almost equally between the two groups. By further hydrolysis of the A group the compound containing iodin has been separated in pure crystalline form. Its exact formula cannot now be stated, but it appears to be di-iodo-di-hydroxy-indol. It crystallizes in microscopic needles that melt around 220 C. It is very insoluble in alcohol, ether, water, acids and sodium carbonate. Dilute hydrochloric acid dissolves 1 part in about 200,000. It is readily soluble in dilute alkali and ammonia.

No definite substance possessing physiologic activity has been isolated from the B group, but it is known to be a complex mixture containing amino-acids. The iodin in B is in organic combination, but the nucleus to which it is attached is unknown.

The thyroid having been separated into several different constituents, it seemed desirable to test each one for its possible physiologic activity. It was found that the typical effects of administration of desiccated thyroid — a rapid increase in pulse rate and vigor, increase in metabolism with loss of weight, and increase in nervous irritability — are all produced by the A constituents.

The next step showed that in A, containing about 5 per cent. of iodin, the effects produced are directly proportional to the amount of iodin present. And finally, in the purification of A and the separation of the iodin compound in crystalline form, the same typical effects were produced through all the various stages of purity, up to and including the crystalline compound containing 60 per cent. of iodin.

In testing B for physiologic activity, it was found that no apparent effects are produced when B is given experimentally to a normal animal or human being, but that a considerable degree of activity is manifest when B is given to patients suffering from cretinism, myxedema and certain conditions of the skin. However, no toxic effects have been produced by the administration of B, even in large amount.

This nontoxic effect of B is in strong contrast to the action of A. Although both A and B contain iodin, it has been shown that the toxicity of A is in direct proportion to its iodin content, but B iodin given in equal amount produces no apparent effect.

As previous investigators have pointed out, it is not iodin per se that is necessary. This work shows that it is the iodized indol that produces the physiologic activity. The actual amount of the crystalline iodin compound necessary to produce marked effect is exceedingly small. A total of 11 mg. (one-sixth grain), given in divided doses during a period of fourteen days to a cretin weighing 40 pounds, increased the pulse rate from 90 to 140. A total of 30 mg. (one-half grain), given in divided doses over a period of eighteen days to a woman weighing 112 pounds, increased the pulse rate from 75 to 130. Not only in rate but also in apparent vigor of the beat the cardiogram of a heart, after administration of the iodin com-

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* From the Mayo Clinic.

[1] Kendall, E. C.: A Method for the Decomposition of the Proteins of the Thyroid, with a Description of Certain Constituents, Jour. Biol. Chem., 1915, xx, 501.

[2] Baumann, E.: Ueber das normale Vorkommen von Jod im Thierkörper, Ztschr. f. physiol. Chem., 1895-1896, xxi, 319.

[3] The physiologic activity referred to is the production of the so-called hyperthyroid symptoms, tachycardia, increase in metabolism with loss of weight and increase in nervous irritability. Some other constituents of the gland possess physiologic activity, but of minor importance.

pound, simulates a cardiogram of a patient with exophthalmic goiter.

What, then, is the relation of this iodin compound and the symptoms of exophthalmic goiter? Pathologic investigation has shown that the severity and duration of the symptoms are accompanied by definite histologic changes in the thyroid. It has been shown that in the severest forms of exophthalmic goiter the parenchyma is far more active than in the normal gland.

Analysis of 137 thyroids from exophthalmic goiter cases showed that, in those glands having a thin, watery secretion, the iodin content was very low, but as the secretion became thicker and less diffusible, the percentage of iodin increased.

These results point to two functions of the thyroid: One function is the manufacture of the iodin compound, and the other that of acting as a reservoir for this compound. We have no means at present of measuring the manufacturing capacity of the gland, but we do know that it is greatly increased in exophthalmic goiter. The reservoir capacity of the gland is obviously proportional to the iodin content. The total amount of iodin in the severest form of exophthalmic goiter averaged 7 mg., and the total iodin in glands in which the secretions had become thick and less diffusible was 35 mg. That is, the reservoir capacity had increased 500 per cent., and when it is known that 1 mg. a day of the pure crystalline iodin compound will produce marked toxic symptoms in a normal person, the important rôle played by the iodin compound in the production of symptoms of exophthalmic goiter is evident.

The separation in pure form of the iodin compound is the first necessary step in the further study, not only of pathologic conditions, but also of the normal physiology of the gland.

SUMMARY

1. By an alkaline alcoholic hydrolysis, the thyroid proteins are broken into many simpler constituents. These may be separated into two groups: the acid insoluble compounds are designated Group A; those acid soluble, Group B.

2. From Group A a pure crystalline compound, containing 60 per cent. of iodin, has been isolated. It appears to be di-iodo-di-hydroxy-indol.

3. Group B contains iodin in some unknown form of combination. It is a mixture containing amino-acid complexes and a low molecular weight.

4. Administration of A produces in the dog and in the human being a rapid increase in pulse rate and vigor, and increase in metabolism and nervous irritability. This physiologic activity is produced by the compound containing iodin in all stages of purity up to and including its crystalline form.

5. Given in excess, toxic symptoms are produced. The amount of the iodin compound required to produce toxic effects is exceedingly small.

6. In exophthalmic goiter two abnormal conditions exist. First, the secreting capacity of the gland is greatly increased and, second, the reservoir capacity of the gland is greatly decreased. The iodin compound plays an important rôle in the production of the symptoms of exophthalmic goiter.

7. The constituents of Group B produce no toxic symptoms, but in cases of cretinism, myxedema and certain skin conditions, they exert physiologic activity.

THE AIMS OF THE ASSOCIATION OF AMERICAN PHYSICIANS *

S. J. MELTZER, M.D., LL.D.
NEW YORK

It is not only customary, but it is by the order of the constitution, that the president opens the first session of the annual meeting by an address. I shall use the words of the first president of the association as a starting point for my remarks. President Delafield said:

> We want an Association in which there will be no medical politics and no medical ethics; an association in which no one will care who are the officers.

I shall deal first with the last-mentioned remark. We still do not care who the officers are. It is the prerogative and the duty of the incumbent of the office of the presidency to express his views on subjects which concern the welfare of the association. Now I wish to say that in my opinion the members of the association shall care more than they do, who are their officers, and especially who shall be their president. In the course of our existence the constitution was so amended as to invest the president with autocratic powers, while his election gradually became, by mere custom, entirely undemocratic. I presume that not many of you know the exact procedure. The five councilors fill each year the coming vacancy in their ranks. The oldest councilor becomes vice-president and then president. While the recommendations of the council are formally submitted to your vote, I am not aware that they were ever voted down. In my opinion this oligarchic form of government harbors a danger. It may readily happen that the *progressive* majority of the members will be continually governed by entrenched *regressive* elements. I do not mean to imply that we are actually confronted with such a situation; I merely wish to call your attention to the possibilities which such an anomalous situation may have in store for you. I do not wish to offer any remedial suggestions; these must come from the members.

Having served as an officer of the association for the last seven years, I am in a position to make the agreeable statement that medical politics and medical ethics still play practically no rôle in the procedure of election to membership in the association. It holds true, in general, that each year of the numerous candidates the best men are elected to fill the vacancies. But I wish to state warningly that we are not entirely free from danger. I am not afraid that we shall ever elect to membership one who was convicted for a criminal act. But avoidance of coming in collision with the criminal code or even a strict compliance with the ethical code of the American Medical Association are not unrefutable evidences of highmindedness. Commercial success in practice of medicine, social standing and social relations, manipulated publicity, the familiar principle of "one hand washes the other" and evils of a similar character are the pernicious elements which may endanger the high standard of our association. I speak not merely from theory. As president, I am entitled to express the wish that the association should comprise not only the most gifted,

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* Remarks made at the opening of the thirtieth meeting of the Association of American Physicians by its president, May 11, 1915, Washington, D. C.

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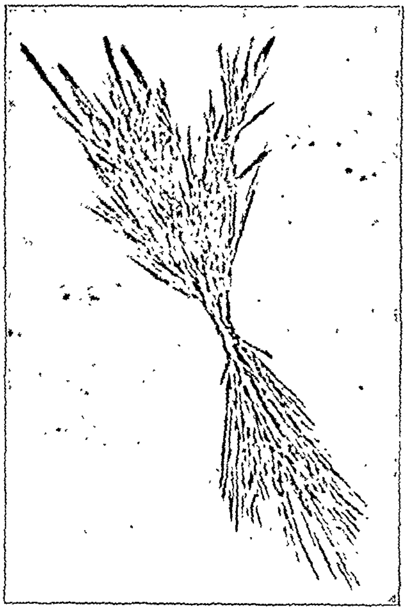
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The total iodin in the gland is found to be divided almost equally between the two groups. By further hydrolysis of the A group the compound containing iodin has been separated in pure crystalline form. Its exact formula cannot now be stated, but it appears to be di-iodo-di-hydroxy-indol. It crystallizes in microscopic needles that melt around 220 C. It is very insoluble in alcohol, ether, water, acids and sodium carbonate. Dilute hydrochloric acid dissolves 1 part in about 200,000. It is readily soluble in dilute alkali and ammonia.

No definite substance possessing physiologic activity has been isolated from the B group, but it is known to be a complex mixture containing amino-acids. The iodin in B is in organic combination, but the nucleus to which it is attached is unknown.

The thyroid having been separated into several different constituents, it seemed desirable to test each one for its possible physiologic activity. It was found that the typical effects of administration of desiccated thyroid — a rapid increase in pulse rate and vigor, increase in metabolism with loss of weight, and increase in nervous irritability — are all produced by the A constituents.

The next step showed that in A, containing about 5 per cent. of iodin, the effects produced are directly proportional to the amount of iodin present. And finally, in the purification of A and the separation of the iodin compound in crystalline form, the same typical effects were produced through all the various stages of purity, up to and including the crystalline compound containing 60 per cent. of iodin.

In testing B for physiologic activity, it was found that no apparent effects are produced when B is given experimentally to a normal animal or human being, but that a considerable degree of activity is manifest when B is given to patients suffering from cretinism, myxedema and certain conditions of the skin. However, no toxic effects have been produced by the administration of B, even in large amount.

This nontoxic effect of B is in strong contrast to the action of A. Although both A and B contain iodin, it has been shown that the toxicity of A is in direct proportion to its iodin content, but B iodin given in equal amount produces no apparent effect.

As previous investigators have pointed out, it is not iodin per se that is necessary. This work shows that it is the iodized indol that produces the physiologic activity. The actual amount of the crystalline iodin compound necessary to produce marked effect is exceedingly small. A total of 11 mg. (one-sixth grain), given in divided doses during a period of fourteen days to a cretin weighing 40 pounds, increased the pulse rate from 90 to 140. A total of 30 mg. (one-half grain), given in divided doses over a period of eighteen days to a woman weighing 112 pounds, increased the pulse rate from 75 to 130. Not only in rate but also in apparent vigor of the beat the cardiogram of a heart, after administration of the iodin com-

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* From the Mayo Clinic.

[1] Kendall, E. C.: A Method for the Decomposition of the Proteins of the Thyroid, with a Description of Certain Constituents, Jour. Biol. Chem., 1915, xx, 501.

[2] Baumann, E.: Ueber das normale Vorkommen von Jod im Thierkörper, Ztschr. f. physiol. Chem., 1895-1896, xxi, 319.

[3] The physiologic activity referred to is the production of the so-called hyperthyroid symptoms, tachycardia, increase in metabolism with loss of weight and increase in nervous irritability. Some other constituents of the gland possess physiologic activity, but of minor importance.

pound, simulates a cardiogram of a patient with exophthalmic goiter.

What, then, is the relation of this iodin compound and the symptoms of exophthalmic goiter? Pathologic investigation has shown that the severity and duration of the symptoms are accompanied by definite histologic changes in the thyroid. It has been shown that in the severest forms of exophthalmic goiter the parenchyma is far more active than in the normal gland.

Analysis of 137 thyroids from exophthalmic goiter cases showed that, in those glands having a thin, watery secretion, the iodin content was very low, but as the secretion became thicker and less diffusible, the percentage of iodin increased.

These results point to two functions of the thyroid: One function is the manufacture of the iodin compound, and the other that of acting as a reservoir for this compound. We have no means at present of measuring the manufacturing capacity of the gland, but we do know that it is greatly increased in exophthalmic goiter. The reservoir capacity of the gland is obviously proportional to the iodin content. The total amount of iodin in the severest form of exophthalmic goiter averaged 7 mg., and the total iodin in glands in which the secretions had become thick and less diffusible was 35 mg. That is, the reservoir capacity had increased 500 per cent., and when it is known that 1 mg. a day of the pure crystalline iodin compound will produce marked toxic symptoms in a normal person, the important rôle played by the iodin compound in the production of symptoms of exophthalmic goiter is evident.

The separation in pure form of the iodin compound is the first necessary step in the further study, not only of pathologic conditions, but also of the normal physiology of the gland.

SUMMARY

1. By an alkaline alcoholic hydrolysis, the thyroid proteins are broken into many simpler constituents. These may be separated into two groups: the acid insoluble compounds are designated Group A; those acid soluble, Group B.

2. From Group A a pure crystalline compound, containing 60 per cent. of iodin, has been isolated. It appears to be di-iodo-di-hydroxy-indol.

3. Group B contains iodin in some unknown form of combination. It is a mixture containing amino-acid complexes and a low molecular weight.

4. Administration of A produces in the dog and in the human being a rapid increase in pulse rate and vigor, and increase in metabolism and nervous irritability. This physiologic activity is produced by the compound containing iodin in all stages of purity up to and including its crystalline form.

5. Given in excess, toxic symptoms are produced. The amount of the iodin compound required to produce toxic effects is exceedingly small.

6. In exophthalmic goiter two abnormal conditions exist. First, the secreting capacity of the gland is greatly increased and, second, the reservoir capacity of the gland is greatly decreased. The iodin compound plays an important rôle in the production of the symptoms of exophthalmic goiter.

7. The constituents of Group B produce no toxic symptoms, but in cases of cretinism, myxedema and certain skin conditions, they exert physiologic activity.

THE AIMS OF THE ASSOCIATION OF AMERICAN PHYSICIANS *

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NEW YORK

It is not only customary, but it is by the order of the constitution, that the president opens the first session of the annual meeting by an address. I shall use the words of the first president of the association as a starting point for my remarks. President Delafield said:

> We want an Association in which there will be no medical politics and no medical ethics; an association in which no one will care who are the officers.

I shall deal first with the last-mentioned remark. We still do not care who the officers are. It is the prerogative and the duty of the incumbent of the office of the presidency to express his views on subjects which concern the welfare of the association. Now I wish to say that in my opinion the members of the association shall care more than they do, who are their officers, and especially who shall be their president. In the course of our existence the constitution was so amended as to invest the president with autocratic powers, while his election gradually became, by mere custom, entirely undemocratic. I presume that not many of you know the exact procedure. The five councilors fill each year the coming vacancy in their ranks. The oldest councilor becomes vice-president and then president. While the recommendations of the council are formally submitted to your vote, I am not aware that they were ever voted down. In my opinion this oligarchic form of government harbors a danger. It may readily happen that the *progressive* majority of the members will be continually governed by entrenched *regressive* elements. I do not mean to imply that we are actually confronted with such a situation; I merely wish to call your attention to the possibilities which such an anomalous situation may have in store for you. I do not wish to offer any remedial suggestions; these must come from the members.

Having served as an officer of the association for the last seven years, I am in a position to make the agreeable statement that medical politics and medical ethics still play practically no rôle in the procedure of election to membership in the association. It holds true, in general, that each year of the numerous candidates the best men are elected to fill the vacancies. But I wish to state warningly that we are not entirely free from danger. I am not afraid that we shall ever elect to membership one who was convicted for a criminal act. But avoidance of coming in collision with the criminal code or even a strict compliance with the ethical code of the American Medical Association are not unrefutable evidences of highmindedness. Commercial success in practice of medicine, social standing and social relations, manipulated publicity, the familiar principle of "one hand washes the other" and evils of a similar character are the pernicious elements which may endanger the high standard of our association. I speak not merely from theory. As president, I am entitled to express the wish that the association should comprise not only the most gifted, most learned and best-known physicians of the land, but should consist at the same time of high-minded, clean-handed men with a tinge of idealism, I appeal to you that in proposing candidates and electing them to membership, the moral standard of the candidate should be one of the primary objects of consideration.

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* Remarks made at the opening of the thirtieth meeting of the Association of American Physicians by its president, May 11, 1915, Washington, D. C.

The reference of the first president to politics and ethics and the historical remarks of another president reveal the cause, or rather one of the causes for the creation of this association. It was chiefly the unsatisfactory conditions which prevailed at that time in the American Medical Association that caused medical men of a higher type to form new national associations. A generation passed since the birth of this association. The change in the standard of American medicine which took place in this comparatively short span of time is marvelous indeed. Was our association an important factor in this progress? I believe that one of our presidents claimed it indeed. But justice compels me to state publicly that the credit for this achievement must be given chiefly to the great national democratic body, the American Medical Association. Since its reorganization, since the scientific part has been divorced from the politics of the Association, the character of the scientific proceedings changed completely. The purely medical work of nearly all the sections is now carried on generally by the scientifically productive, progressive medical element of the whole country which generally participates but little in the political activities of the organization. Furthermore, the new policies adopted by the recognized association undoubtedly exerted a most beneficial influence on the development of medicine in this country. I need only mention the work of the Council on Medical Education and of the Council on Pharmacy and Chemistry. The aims and the success of the last-named committee exerted even an international beneficent influence on medical therapeutics. Not the least of the merits of the regenerated American Medical Association is the high standard which The Journal is maintaining; it is undoubtedly now one of the best medical journals in the world. In this laudable work of the new American Medical Association, some of our members have taken an active part. But our association as a body cannot claim credit for the progress which was made in medical affairs of this country during the period of its existence; it was not brought about by any definite designs or policies of this association.

If the Association of American Physicians exerted an elevating influence on American medicine, it did so by its mere existence. When it was founded a generation ago, the effort was made to incorporate in it the best medical men which could be then found in the country. Since then, year by year, an effort was made to admit only those who were the best of the available material at each period. With the introduction of the institute of associate membership, a remedy was acquired to correct mistakes.

From the start our association formed a constituent part of the body known as the Triennial Congress of American Physicians and Surgeons. Like the other constituent societies, for instance, the surgical or the ophthalmologic, our association represents a certain special part of the medical practice; it represents *internal medicine.* This association, however, has one advantage over all of them. All practical medical subjects presuppose the knowledge of the pure medical sciences, for instance, physiology, pathology, bacteriology, pharmacology or hygiene. But the Association of American Physicians alone has the advantage of counting among its members invesigators of these various sciences. I say, it has the advantage; there are some among us who may not consider it an unmixed blessing.

Delafield, in the first presidential address, spoke of an association of physicians and pathologists. Osler, ten years later, added bacteriologists. We now have among our members also physiologists, pharmacologists and investigators in the fields of hygiene and preventive medicine. Permit me to define my own position as to the aim and the composition of the membership of this association. I entirely agree with the sentiment that the object of this association is, and should be, clinical medicine in both of its aspects, the scientific and the practical. Purely physiologic or chemical communications which have only a remote bearing on medicine do not belong before this forum. Neither should medical scientists whose work and interest lie at a great distance from clinical medicine be elected to membership of this association. But let me say this to you: For thirty-odd years I have been engaged in a more or less active way in the scientific as well as in the practical sides of medicine. It is my profound conviction that clinical medicine has a great future before it; but that the real success will come only from a close association of clinical medicine with the medical sciences.

The object of our association is to increase our knowledge of the intricacies of medicine, to learn from one another the new things we have unraveled and to instruct one another in the art of advancing our knowledge. That object will be best attained when the men studying the sciences of medicine and the men studying and handling diseases will come together and have a chance to be stimulated and instructed by one another. Of course both parties must be openminded, must be anxious to learn, and must have a deep interest in medicine and a full grasp of what it really means. Diseases are experiments which Nature makes on men and beasts. A mind trained in observing properly natural phenomena and studying critically experimental results is best prepared to interpret Nature's experiments, to grasp Nature's method in correcting physiologic aberration and to try courageously to improve on these methods and to discover or invent new ones. The best physician of the future will be the brainy man who spent many years in studying the methods employed in acquiring knowledge in the pure medical sciences and then in applying all his mental energies to a broad study of diseases. The field of the clinician is not confined to diagnosis and therapy alone, as was stated in one of the presidential addresses by a leading clinician. Great physicians were often also great original investigators. By diagnosis and therapy alone we would, for instance, have no knowledge of Bright's, of Graves' or of Addison's disease; we would not have known of myxedema or acromegaly. In fact, a good deal of our knowledge of the significance of the ductless glands and internal secretion was established by clinical observations, and at first even against violent opposition of some classical physiologists. An instance, illustrating the value of cooperation between clinical men and men in the medical sciences, is the discovery of the blood pressure raising principle of epinephrin by Oliver and Schäfer. It was the physician Oliver who first noticed, by insufficient methods, that the administration of extract of suprarenals seemed to increase the blood pressure. By obtaining the cooperation of the physiologist Schäfer, the subject was investigated by proper physiologic methods, and the discovery of epinephrin, which attained such great importance, was safely established.

I therefore say again that it is of great advantage to our association to have among its members investigators in the various fields of the medical sciences. Clinical medicine and medical sciences must be brought closely together and work in harmony; that will assure a steady progress of the science and practice of medicine. This union is what distinguishes our association from other societies and which gives it the right of continual existence.

Some older members complain that the papers presented at the meetings are getting above their heads. While this may be a fact, it cannot be made the basis of a complaint. The papers of the program of an annual meeting reflect in general the character of the medical studies which prevail at that period. The science of medicine is progressing. Do these members wish that our science should stop progressing as soon as they, for one reason or another, cannot follow it? The very same members who make this complaint were progressives at some time or another; otherwise they would not have become members of this association. Their work at their time was probably above the head of those who remained then behind them.

If the character of the papers on our program reflects the nature of the problems which occupied the minds of our members in the past year, the number of these papers show their intense scientific activity. A long program awaits you — and me. I shall have to be strict in enforcing the time limit to the speakers. I have the good will to be impartial and shall therefore cut short my own remarks.

PATHOLOGY OF WAR SURGERY *

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SAN FRANCISCO

It has been said that "Peace hath its problems no less than War." That war, however, may concentrate certain problems of peace, which are well under control in times of peace, this, and past wars have clearly demonstrated. The dangerous forces of nature, which an enlightened humanity has begun to control, come very much to the fore when humanity turns upon itself.

The object of civilized warfare has always been to render the opposing soldier a noncombatant with as little danger as possible. For this purpose we have Hague conventions, banning the use of dumdum bullets. Hague conventions take account, however, neither of the ever-present microbe nor of inclement weather, nor yet of the abuses of nature that the present methods of warfare make inevitable. It is these factors that we are fighting, and their further exposition may therefore not be out of place.

The elaborate machinery of a "Service de santé militaire" is intended to combat these dangers. An ambulance such as this is a necessary element in such a machinery, and a laboratory organization a not unimportant cog.

Our work in the department of pathology has necessarily limited itself to the problem of war surgery. The special character of the patients at the ambulance has necessitated examinations with reference to the kind of infection and the manner in which their wounds reacted to this. Our function has been, and is, to supply the microscopic eyes to the surgeons and the clinicians. It would be impossible in a short space to describe in detail each phase of the work carried out in the laboratory. I shall attempt to give only a general idea of the things we have tried to do.

The department, organized in November, has carried out to the present time, March 30, 1915, about 850 examinations, fifty necropsies and twenty biopsies. The greater part of these examinations has been chiefly that of the blood and the urine. Suspected abscesses, where generalization in the blood stream had not yet taken place, demanded an inquiry into the reacting powers of the blood. We have had 153 occasions to do this. Injuries in the neighborhood of the kidneys, possible postoperative affections of the kidneys, and infections of the kidneys in cases of spinal paralysis have required the examination of urinary specimens over 200 times.

The occurrence of tropical infections where so many of our wounded have either lived or been born, has had to be considered, this more especially where unexplained fever was present. In seven cases the malarial parasite was found to have caused the rise of temperature.

Owing to the care with which the cases have been admitted, we have fortunately been spared infectious fevers. It has been necessary twelve times only to make the differential diagnosis between typhoid fever and simulating surgical infections.

It is not uncommon for men who have healed lesions of tuberculosis, and then lead a trench life, to have these lesions develop anew. We have examined seventy-four sputums in which this possibility had to be considered.

In any community, infectious throat inflammation is an ever-present factor. Here, we have had sixty-eight examinations in which this element of diagnosis has arisen. In this, as in the other preceding cases, it is not bullets alone that slay, but bacilli that are continually adding to the dreadful toll.

It is a difficult thing for the surgeon to see the kind of bacterium with which he has to contend, with the exception of the pyocyaneous infection. The color of the pus does not sufficiently show the nature of the infecting microbe. Bacteriologic examination of the pus exuding from a wound becomes of importance for this reason. We have, in all, examined 118 wounds. Our results, as well as the results of a series of examinations conducted in the university laboratory in conjunction with the laboratory of the hospital, I shall cite below.

From the very outset we have been obliged to take into consideration the temporary nature of the hospital. To organize a complete laboratory of any permanent character meant a diversion of monies from a perhaps much more necessary aim. We have therefore contented ourselves only with the absolute essentials necessary to increase the usefulness of the laboratory to the attending surgeons. The organization of the laboratory consists at present of a series of rooms

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* Read before the Medical Society of American Ambulance, Paris, March, 1915, and the St. Francis Hospital Clinical Society.

placed at our disposition by the kindness of the medical board and the ambulance committee. This has permitted the setting aside of: one room especially for bacteriologic investigation; one room for clinical and chemical analysis, and one room reserved exclusively for histologic examinations of tissues excised which were of a questionable nature.

The acute character of the cases in which operation was performed has made necessary only twenty-one examinations of the latter sort.

In the fifty necropsies which have been performed, the causes of death have either been secondary fatal hemorrhages from previous wounding of blood vessels reopened after a few days as a result of the sloughing of tissue, or infection of wounds of the brain, spinal cord, chest or abdomen. Under the latter heading may also be included the infections consequent to large compound fractures of either the upper or lower extremities. Tetanus was the cause of death in only two cases. Pneumonia was an occasional complicating cause after previous injury to the jaw in which swallowing had been interfered with by the swelling of the tissues of the floor of the mouth.

The vagaries of the wounding projectile were as strange as it is possible for the mind of man to conceive; and naturally so, when one considers the rain of bullets to which these men were exposed. In one case the bullet entered the left side of the abdomen at a point between the spleen and the left kidney, continued upward, and in its course injured the tail of the pancreas, traversed both walls of the stomach, and continued on through the diaphragm, finally to lodge in the muscular substance of the heart, close to the right auriculoventricular valve. This patient lived ten days after the injury. In another case the bullet had entered the left back of the chest, close to the spinal column, had ploughed its way through the lung, through the diaphragm, into the stomach and thence proceeded calmly on its way as any morsel of food. This man likewise lived a period of almost two weeks, ultimately to succumb to a suppurative pleurisy.

Cases of secondary hemorrhage have been likewise varied. Three patients — after a previous wound of either the jaw or the mouth — died of hemorrhage of the lingual artery; the vessels injured originally at the moment of the wound and controlled in the field, after several days began to bleed afresh with ultimate death from hemorrhage. These have been fortunately few. In one case of bullet wound of the jaw, the bullet passed through the back of the mastoid process, and at necropsy was found to have involved the vertebral artery. This explained the surgeon's inability to control the hemorrhage by ligating the internal and common carotid of that side. One of the rarest occurrences encountered at necropsy was a soldier with a compound fracture of the jaw, who died three days after the receipt of the injury, as a result of hemorrhage from the severed inferior dental artery. All of these conditions have been object lessons in the care and treatment of similar cases.

Injuries to the head and spinal column with a fatal outcome make up almost 30 per cent. of the fatal cases. Most of the injuries produced by the entrance of projectiles to the brain or spinal cord still resist our advanced methods of therapy. If not immediately infected, it seems a difficult thing to prevent later infection. A number of cases of gunshot wounds of the skull develop septic meningitis, caused either by the staphylococcus or the streptococcus; weeks after the wound is apparently healing satisfactorily. This is a field in which some advance is still to be looked for.

Tetanus, that dread disease of previous wars, has practically lost its terrors. The universal administration of antitetanic serum has conclusively proved its value. We have had only two deaths of this disease; one soldier had received an injection of serum immediately on his arrival at the hospital, but infection with the *Bacillus tetani* had unfortunately been too far advanced to be arrested at that time; the other patient had not received serum owing to the absence of any visible wound — the condition for which he had been admitted was that of frost bite of both lower extremities. He died of tetanus two days after admission. This demonstrates how important is the prophylactic administration of antitetanic serum in any condition in which the skin vitality may be diminished. It also demonstrates the good judgment of the surgeons in charge in insisting on the use of serum in every case admitted to this hospital — a rule which, except in the instance mentioned, has never been deviated from.

We have had seven fatal cases of gaseous gangrene infection. These have all been acute cases admitted with symptoms of fully developed gas gangrene infection, which have succumbed in a few days despite all possible efforts. I shall go more fully into this condition later.

As was to be expected, a fairly large percentage of the fatal cases was due to infection of wounds. In some of these, infection of the bone marrow was the primary cause; in others, extension of the infection into the blood vessels of the neighboring region gave rise to a purulent thrombophlebitis with spread of infection throughout the body. In a few instances, the cause of death was chronic sepsis attendant on a suppurative infection of one or more points of the body.

Of abdominal injuries which have resulted fatally, we have had only two instances. The distance of this ambulance from the front is perhaps the best explanation for its rare occurrence here.

The greatest number of fatal cases has been unpreventable. Most deaths were caused either by conditions not amenable to surgical treatment, or by the advanced state of the infection at the time of entrance. Very few were due to conditions that had not been recognized sufficiently early. Despite the greatly increased number of admissions, including cases much more severe than even in the early days of the hospital, the four deaths we have had to record since February 1 to the present date (March 30, 1915) sufficiently attest to the increased vigilance of the attending surgeons. May I be permitted to touch on the mortality of this hospital? We have had occasion in the past to realize what a frightful mortality attends surgical wounds inflicted in war time. In the total admissions, numbering well over 1,400, there have been eighty-one deaths, 6 per cent., a mortality rate which hospitals, even in peace times, might point to with a great deal of pride. How much more reason have we to be proud of so low a mortality rate with such severe, complicated injuries? We have attempted to do our little share toward helping to decrease this mortality rate by increasing the possibilities for more accurate diagnosis and adding to the indications for surgical intervention.

In research we have been able only to scratch the surface. The paucity of help and equipment is our only excuse. As previously stated, in conjunction with Dr. Huffman of the university laboratory, I have carried out bacteriologic investigations in a series of sixty-two consecutive cases. It was possible to demonstrate that of the sixty-two cases, seventeen were found harboring the *Bacillus perfringens* — in one case pure, in all other cases associated with the staphylococcus, with the streptococcus, with the *Bacillus coli*, with the pyocyaneus, and two up to the present unidentified anaerobic bacilli. The common pus producers, well known to surgeons in times of peace, have not kept their unwelcome presence from us. Staphylococcus and streptococcus have been frequent visitors. The staphylococcus has been found thirteen times; the streptococcus only six times. Clinically, old wounds showed almost a pure staphylococcus infection. When badly infected and discharging for a long period of time, the perfringens and the pyocyaneus bacilli were commonly found present. In the 118 cases in which we had occasion to carry out bacteriologic investigation in the hospital laboratory, the *Bacillus perfringens* was seen thirty-three times. On seven occasions this was the only microbe evident. These were all cases of gas gangrene, for the most part fatal.

The frequent occurrence of the *Bacillus perfringens* and other anaerobic bacilli has prompted us to carry out attempts at vaccination with the Weimberg mixed vaccine. I may safely say that it has never done harm; in cases in which the perfringens seemed to be the predominant organism, it has seemed to be of decided value. In a series of ten cases treated on the Lakeside service, wounds infected with the perfringens bacilli healed rapidly. In one case, in which an infection of a stump was present in which this bacillus was found associated with other bacteria, the use of the vaccine brought subjective as well as objective improvement. The wounded patient insisted that the treatment had helped to diminish his pain. Objectively, the discharge had very evidently diminished in quantity. In a series of eight cases treated on Dr. Blake's service, in which the *Bacillus perfringens* likewise had been found, one patient in whom the vaccine treatment had been instituted rather late died. In the others, the rapid subsidence of temperature and the comparative rapidity with which the wound healed seemed an indication of its efficiency. It is needless to say that the number of cases treated is far insufficient to be able to draw definite conclusions. They *are* sufficient in number to indicate the path that might be followed with possibly excellent results.

Of vaccine and serum therapy in general we have not been given sufficient cases to draw any very definite conclusions. Antistreptococcus serum has been used in five instances. Two cases of streptococcus septicemia did not respond, although large doses of the serum were administered intravenously. One soldier whose wound discharge revealed, on examination, the presence of anaerobic streptococci, was healed in a remarkably short space of time after the use of the serum, a rapid subsidence of the temperature and a marked subjective increase of comfort following injection. In two other cases the use of the serum locally in wounds seems to have been of help. The press of work has not enabled us to follow up consistently this form of treatment.

The use of autogenous vaccines has been limited. Several cases of staphylococcus septicemia did not respond. Two local infections have been followed by amelioration of the symptoms.

May I be permitted to make a plea here for a more extended use of this method of therapy? When, if not at such a time, can we draw definite conclusions as to its value?

The most interesting form of wound infection encountered here has naturally been that of the gaseous gangrene — not a newly discovered disease, as supposed in some quarters, but a fairly old disease, which, owing to the concentration of individuals and the methods of warfare, has sprung suddenly into prominence. Infection of wounds by anaerobic bacilli had been seen in previous wars. The question as to the anaerobic nature of the infection was naturally left undetermined. Bacteriologic laboratories then, as today, were not considered a sine qua non. Small wonder that it had been left to us to combat this disease with its etiology and therapy practically unknown.

The first essential naturally was to determine definitely the actual nature of the disease. The first definite case in which the bacillus was isolated from the blood, sufficiently early after death to make its causal rôle absolute, occurred at this ambulance. A culture of the heart's blood, taken three hours after death, proved to be infected exclusively with the *Bacillus perfringens.* Since that time the number of cases has multiplied in which the *Bacillus perfringens* has been found to be the causal factor. There are other bacteria, however, that will produce gas in gangrenous tissues. The *Bacillus proteus,* the *Bacillus coli* at such a time do not remain innocent invaders. In eight undeniable clinical cases of gaseous gangrene, we have in seven instances found the perfringens; in one other instance the *Bacillus putrificus* was associated with the streptococcus. In two of these instances the use of the Weimberg vaccine, given at a late date, did not prevent the patient's death. We have not been able to infect guinea-pigs with this bacillus alone. Only by the previous injury of tissue have we been able to produce what may be clinically called gaseous gangrene. At the Pasteur Institute, injury of the muscle seems to have been all that was sufficient.

Pathologically, the lesions have been almost uniform. A punctured wound of the skin, associated in every case with injury to a large blood vessel, and in most cases with a fracture of the bone — this seems to have been a sine qua non. Following this, at intervals of from one to four days, infection with superficial gangrene, extensive destruction and necrosis of the tissues immediately adjacent to the wound, marked cloudy swelling of the muscles above and below the wound, extensive edematous infiltration interspersed with gas bubbles varying in size, are always present, and, externally, a characteristic discoloration of the skin, with a characteristic, pungent fetid odor, once smelled, never forgotten. Vesicles, varying in size from that of a pea to almost as large as the flat of the hand, are present, filled with a sanious fluid. Occasionally this fluid was found straw-colored. These blebs were examined bacteriologically; in a few instances they showed the presence of the characteristic bacillus; in other instances no bacillary infection could be found, with perhaps the exception of the banal skin bacteria. The examination of the serous infiltrating fluid showed invariably, except in the case previously mentioned, the bacillus of Welch. In some cases the characteristic changes in the tissues remained localized to the affected limb; the opposite limb, or even the opposite part of the body, showed none of these. Occasionally the local changes seemed to have been arrested at Poupart's ligament, even though the blood was later found full of bacteria. In all cases, except where the *Bacillus putrificus* was found, the heart was found to be filled with bubbles of gas, and likewise other larger vessels of the body, as well as the vessels of the brain. The hemorrhage underneath the skin layer found so often in biopsies as well as at necropsy, could be explained after a histologic examination of the tissues. The toxin of the bacillus seems to exert a special selective action on the muscular layers of the blood vessel walls, so that an escape of the blood becomes almost natural.

Despite the small number of cases examined, I feel safe in venturing to say that the production of gas plays a not unimportant rôle in the causation of death in this disease. The acute attacks of pain complained of by the patient previous to death, the rapidity with which the fatal symptoms set in, can only be likened to caisson disease, in which air emboli are the chief pathologic factor.

In cases of abscess with gas, when the septicemic features of the disease have not developed, it is the toxin production, I am sure, that is responsible for the wearing down of the patient's vitality. Histologically the changes can best be summed up as hemorrhage, edema and gas production. The parenchymatous changes in the muscle fibers which are the predominant features histologically are an early and well-marked pathologic change constantly present. This undoubtedly contributes in a large measure to the pouring forth of blood cells and the general infiltration of the tissues with serum.

In limbs fixed immediately after amputation we have found this change, namely, the splitting and coagulation necrosis of the muscle fibers of the media, which seem to point to a special selective action of the virus of the disease on the muscle coats of the blood vessel walls.

Two cases that we have had occasion to study bacteriologically here have responded, one to amputation, and the other to an intravenous injection of the serum prepared by the injection of cultures of the *Bacillus perfringens.* This also points the way to further investigation.

The etiology of this infection may perhaps be explained by the positive presence of anaerobic bacilli in the outer clothing of soldiers. We have not carried out this phase of investigation very extensively, but on several occasions we have examined the clothing of soldiers who have been brought directly from the battlefield and have found these bacilli present.

That the presence of this bacillus is not alone the factor that permits of the production of gaseous gangrene infection is proved by the comparative frequency with which it is found in ordinary wounds. The contributing cause is always, I think, an associated lesion of a blood vessel that will produce sufficient gangrenous tissue for this bacillus to thrive in ease, and by the production of protamin toxins, break down the resistance of the surrounding tissues and enable it to continue its vicious cycle unmolested. We have found this associated injury in every case examined at necropsy. The absence of leukocytes in the immediate vicinity of the infecting area, their scavenger activities when no dead tissue is present to permit of the growth of the *Bacillus perfringens,* seem to me a fairly good indication of the soundness of this hypothesis. All these are facts which only an extended investigation can either completely verify or disprove. I trust it will fall to the lot of the laboratory units that will come here in the future to settle these points definitely. As I have said before, we have merely ruffled the surface. It remains for them to dive deep into the sea of nature and bring forth the pearls of truth.

INFANT MORTALITY DUE TO LABOR*

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The conservation of infant life, the prevention of infant mortality, is a subject that has been given much attention in recent years, not only in this country but also throughout the world. A strong national society has been organized to stimulate general interest in the subject, and to secure lay and professional cooperation in controlling the causes of the high mortality.

One of the important phases of this subject is an obstetric problem. Infant mortality during labor and due chiefly to labor is very high. The accidents of labor which destroy the fetus causing stillbirth, or those which injure it so that the infant dies shortly after birth are many. A study of these accidents involves a review of many obstetric problems. In such a review, we approach the most important questions of dystocia in a way that should lead to valuable suggestions for practice.

STATISTICS OF INTRAPARTUM MORTALITY

A statistical study is interesting and valuable, but unfortunately we have little data in the United States. In the mortality statistics of the United States Census Bureau, we have mortality statistics for the registration area, which embraces 65 per cent. of the population of the United States. For the rest of the country we have only the population statistics. Even in the registration area we have no record of births. Nevertheless, it may be of some value to make estimates, using the rates of birth and mortality from other countries in order to secure a more detailed picture of the subject. Even if the approximate figures be far from exact, they will lead us into no serious error. The causes of stillbirths are the same here as in Europe, and our study will show the relative importance of the different etiologic factors in intrapartum mortality. No claim is made for the scientific accuracy of the results; they are only helpful and suggestive in the study of the obstetric problem.

Let us assume the present population of the United States as about 100,000,000, that of Chicago as about one fortieth as much and that of Illinois as two and one-half times as great as that of Chicago or one sixteenth that of the United States. Then let us assume that Chicago and Illinois have about an average birth rate and mortality rate. This is true of the mortality rate of Chicago and probably reasonable for the birth rate. Of course we know very little about the mortality rate of the rest of the state, for, unfortunately, Illinois has no vital statistics law that is recognized by the Census Bureau, and therefore it is not included in the registration area.

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* Presented before the Chicago Gynecological Society, May 21, 1915.

Let us assume that the average birth rate for the United States and for Illinois is about 24 per thousand. This would give about 2,400,000 births annually in the United States, 150,000 in Illinois, and 60,000 in Chicago.

Brothers found the number of stillbirths in New York City to be about 8 per cent. of the births. This rate is probably too high, because the figures of the number of births on which it is based are too small. In various European clinics the rate is between 4 and 7 per cent. In the German empire it is between 3 and 5 per cent. There are nearly 3,000 stillbirths reported in Chicago, or, according to our estimate about 5 per cent. of the births. The number of reported stillbirths is probably everywhere somewhat below the actual number occurring. We shall probably not be far from the truth if we say that there are 120,000 stillbirths annually in the United States, 7,500 in Illinois and 3,000 in Chicago.

In considering the question of intrapartum mortality, it is necessary to determine what proportion of fetal deaths occur before the onset of labor and how many occur during labor. This fact could be determined easily if the condition of the stillbirths was reported, for, as is well known, the fetus becomes macerated when it remains in the uterus long after death. Reports from a number of clinics show that in nearly half of the stillbirths the fetuses are macerated. It is also important to observe that the proportion of macerated fetuses is much greater among the premature than among the children at or near term. These premature, nonviable and macerated fetuses represent the stillbirths due to antepartum disease of the mother or fetus, such as syphilis, nephritis, infection, etc. A study of this group is important, but not within the scope of this paper, which is concerned only with intrapartum mortality. Accepting the fact that, without great error, from two fifths to one half of the fetal deaths occur before labor, we may take from one half to three fifths of the figures given before for the number of nonmacerated or recently dead stillbirths, that is, for the fetal mortality during labor. We then have from 60,000 to 70,000 for the United States, about 4,000 for Illinois and 1,600 for Chicago.

In studying the effect of labor on infant mortality, we must consider not only the number of stillbirths, but also the number of deaths that result from accidents of labor when death occurs within a few days of birth. The census report gives over 5,000 deaths from "injuries of labor" in the registration area. This would correspond to about 8,000 from the whole United States. There are also about 29,000 deaths during the first week of life from congenital debility and prematurity in the registration area, or 45,000 in the United States. Over half of these infants are under 1 day old. It is of course impossible to say for how many of these deaths the labor is responsible, that is, how many could have been prevented by a better management of labor. The premature child is more easily injured even in a spontaneous and apparently normal labor. Strong uterine contractions with a deficiency of liquor amnii may produce hemorrhage in the brain or lungs. Likewise, lack of care immediately after birth will cause refrigeration to 94 F. or lower, which becomes the important factor in the early death of the child. It is certainly conservative to estimate that from 5,000 to 6,000 of these 45,000 deaths could be prevented by a better conduct of labor.

Moreover, there are in the registration area nearly 1,000 deaths during the first seven days from convulsions, and a like number from bronchitis, bronchopneumonia and pneumonia. This will correspond to about 1,600 deaths in the United States in each of these classes. Certainly a large number of these are due to injuries and accidents of labor, and probably nearly half are preventable. If we say that 7,000 of the 56,000 deaths in the first seven days of life not due to injuries of labor are due to labor, we are undoubtedly within the limit of conservative statements. Adding to these the 8,000 ascribed to injuries of labor, we have 15,000 children dying from labor within a week, and half of them the first day.

We then have the following figures denoting the number of deaths due to labor: For the United States, 65,000 stillbirths and 15,000 deaths subsequent to birth, or 80,000. Likewise in Illinois, 5,000, and in Chicago, 2,000. This would give a fetal mortality due to labor of 3⅓ per cent.

In the recent presidential address of J. Whitridge Williams before the American Association for the Study and Prevention of Infant Mortality, the author makes a study of 705 fetal deaths in 10,000 cases of labor. In this series were included all deaths during labor as well as those occurring during the first two weeks after birth. Selecting out the cases probably due to labor to compare with our own, I find 285, or a fetal mortality of 2.85 per cent. The causes of fetal death were as given in Table 1.

TABLE 1.—CAUSES OF FETAL DEATH

Cause	No.
Dystocia	124
Placenta praevia	22
Ablatio placentae	13
Toxemia	46
Prematurity (one eighth of the cases)	6
Unknown (not macerated)	74
Total	285

CAUSES OF INTRAPARTUM MORTALITY

We may now consider the influence of malpresentation of the fetus, other forms of dystocia and obstetric operations in determining the intrapartum mortality. Cross-presentations are almost always fatal unless corrected by operation. If the frequency is about 0.5 per cent., the number of cross-births in the United States is about 12,000 annually. An average death rate of 40 per cent. gives us a mortality of 4,800. Similar computations give us 300 deaths from cross-births in Illinois and 120 in Chicago.

Prolapse of the cord is responsible for about the same number of deaths. This accident occurs in many of the cross-births as well as in breech presentations, and is responsible for many of the deaths charged to these malpresentations.

Face and brow presentations taken together are slightly less frequent than cross-presentations, but the mortality should not average much above 12 per cent. This would give about 1,500 deaths yearly in the United States, from 90 to 100 in Illinois and 40 in Chicago.

Breech or pelvic presentations occur in about 3 per cent. of all labors. This rate would give 72,000 breech labors yearly in the United States. The total mortality is from 20 to 25 per cent., corresponding to from 15,000 to 18,000 deaths due to this condition. Likewise we find in Illinois 4,500 cases with a mortality of about 1,000, and in Chicago 1,800 cases with a mortality of 400. In these cases, prolapse of the cord also plays a rôle.

Taken together, we have about 24,000 deaths from the three varieties of malpresentation. As the total number of births in malpresentations is about 4 per cent. of the total number of births or about 100,000 annually, we have the infant mortality about 24 per cent. This leaves about 56,000 infant deaths in skull presentations, or about 2.4 per cent. In other words, the infant mortality due to labor is ten times as great in these malpresentations as in skull presentations.

Passing now to the skull presentations, I shall consider the forceps operations. It is very difficult to estimate the frequency. In some sections, forceps are applied by physicians in from 40 to 50 per cent. of all cases. In other districts the frequency of forceps does not exceed that of well-managed clinics, that is, from 2 to 4 per cent. Probably if we consider the whole country as well as the state, we shall be conservative if we estimate the frequency to be between 6 and 7 per cent. of all labors. That would give us 160,000 forceps operations in the United States yearly, 10,000 in Illinois and 4,000 in Chicago. The mortality from forceps differs greatly according to the kind of operation. Low forceps are not very dangerous, while high forceps have a fetal mortality of from 50 to 90 per cent. Probably an estimate of 15 per cent. fetal mortality for all operations is conservative. This would give us about 24,000 deaths annually in the United States, 1,500 in Illinois and 600 in Chicago.

To these sources of infant mortality we may add eclampsia, or puerperal albuminuria and convulsions, as it is called in the International List, which is the cause of about 4,000 fetal deaths each year, rupture of the uterus, placenta praevia and ablatio placentae, everyone of which caused from 1,600 to 2,000 fetal deaths annually. Also a number of other rare accidents of labor or kinds of dystocia add to the infant mortality. Many of the deaths due to these causes have been already included under some other heading. This group adds about 12,000 deaths to those already enumerated in the preceding paragraphs.

Summing up, we find Table 2 expressing the approximate infant mortality from the causes already given.

TABLE 2.—CAUSES OF INTRAPARTUM INFANT MORTALITY

Causes	In United States	In Illinois	In Chicago
Malpresentations	24,000	1,500	600
Forceps operations	24,000	1,500	600
Miscellaneous causes	12,000	750	300
Total	60,000	3,750	1,500

Recalling the estimate of 80,000 deaths due to the accidents of birth, we find 20,000, or 25 per cent., unaccounted for. It is interesting to compare this with Williams' findings. He gives 127 deaths due to unknown causes. Fifty-three of this number are macerated stillbirths, however, leaving seventy-four unknown, or 26 per cent. of the 285 deaths probably due to labor. This result probably corresponds pretty well with the experience of most obstetricians. For about every fourth child that dies during or shortly after the labor, the death cannot be attributed to any of the accidents of labor or forms of dystocia, already enumerated. For reasons about to be given, I shall ascribe these deaths to the kind of dystocia not yet considered, namely, abnormal uterine contractions.

Completing our table and reducing it to percentages, we have the data given in Table 3.

TABLE 3.—CAUSES OF INTRAPARTUM INFANT MORTALITY

	Per cent.
Malpresentation	30
Forceps operations	30
Miscellaneous causes, including placenta praevia, ablatio placentae, ruptured uterus, toxemia, etc.	15
Pathologic uterine contractions	25

PATHOLOGIC UTERINE CONTRACTIONS

I wish to call special attention to the last cause and try to justify ascribing so much importance to it. The danger of abnormal uterine contractions is not, as a rule, sufficiently recognized. Before labor begins, the oxygenation of the fetal blood occurs in the placenta. A continuous and abundant circulation of the maternal blood furnishes the oxygen and removes the waste from the fetal blood. When the uterine contractions begin, the maternal circulation is disturbed. So long as the contractions last only a short time and are separated by considerable intervals of relaxation, there is no appreciable disturbance to the fetus. Our main index of the fetal condition is its circulation or heart tones. The frequency of the heart tones changes but little or not at all during the early contractions of labor.

When the contractions last longer and occur more frequently, there is more disturbance in the placental circulation and more derangement in the fetal circulation. If the contractions last more than one and one-half minutes, and if the intervals between contractions are shorter than the contractions themselves, the condition is pathologic and dangerous. If the contractions become more frequent and prolonged so that there is hardly any interval, we have the condition called tetany uteri, which almost always results in fetal death.

Such excessive contractions may occur early in labor, but they generally come on later. They are often the reaction of the uterus to obstacles to delivery, and so occur in contracted pelves, bad presentations, etc. They are excited by operative interference. They are the cause of fetal death not only in the 25 per cent. of causes given in the table, but also in some of the other categories. In all malpositions, fetal death is frequently due to excessive contractions, excited by the delay to labor. It may be true that in 50 per cent. of all intrapartum fetal deaths, the immediate cause of death is excessive uterine contractions.

If it should be objected that 20,000, or 25 per cent., of all fetal deaths is too large a number to be ascribed to this cause, it must be remembered that the mortality rate is nevertheless small. From 2,400,000 labors each year we deduct 100,000 malpositions and 200,000 forceps cases and cases of toxemia, placenta praevia, etc., leaving 2,100,000, in which 20,000 deaths make less than 1 per cent. A certain number of these cases are undoubtedly contracted pelves, and the injuries produced by the pressure required to mold the head to make its translation possible are factors that combine with the excessive uterine contractions to injure the child. It is, indeed, difficult always to apportion the blame. Even when postmortem examinations are made, the findings are not decisive. A careful study of the clinical history is, however, often conclusive. The contractions are normal for hours, and the child in good condition. Then comes a period of perhaps only an hour or two of very severe pains, long and hard, with short intervals, after which the fetal heart tones are wanting.

It is very important, therefore, to watch the uterine contractions with great care in long and hard labors, and especially toward the end of labor, when excessive contractions are more apt to occur. The diagnosis of the contractions is easily made by watching the patient and noting the hardening of the uterus by laying the hand on the abdomen. The diagnosis of the condition of the fetus is made by counting the fetal heart tones. Whenever there is danger, the heart tones should be counted every ten to twenty minutes.

The management of excessive contractions to prevent fetal death is to control the contractions. The best means is the hypodermic injection of morphin, and anesthesia. One-fourth grain of morphin is generally sufficient in the first stage of labor. If necessary, this dose could be repeated, for at this time there is not very much danger of morphin affecting the child. In the second stage, ether may well be combined with morphin, or substituted for it. Should the obstacle to delivery that excites the excessive uterine contractions be at the obstetric outlet, that is, should the head be on the perineum and held back by a tense, unyielding vulvar ring, episiotomy should be done. If the head is not at the vulva but down in the pelvis, and the cervix is well dilated, and if, in spite of morphin and anesthesia, the danger to the child is great, forceps may be applied. As a rule, however, forceps will increase the danger of fetal asphyxiation and should not be used unless an easy and quick extraction is possible.

MORTALITY FROM THE USE OF FORCEPS

The prevention of intrapartum death in case of bad presentation involves the correct management of these forms of dystocia, and cannot be entered on in detail in this paper. In regard to the deaths due to forceps operations, it must be said that forceps are employed much too frequently—often on account of the entreaties of the patient and her friends, often to hasten the labor for the convenience of the physician. Whenever forceps are used for these reasons, and the child is lost, its death is rightly charged against the operation, which is not far removed from the category of malpractice.

There is a great difference in the danger of high forceps and low forceps. The former has been used far too much in contracted pelves. We have learned that other operations are safer both to mother and to child. Cesarean section or hebosteotomy is in proper cases to be chosen, while the induction of premature labor must be considered in cases seen early enough in pregnancy. Above all, these cases should be studied long and with care. Exact diagnosis, not only of presentation and position, but also of station, should be made. One who rushes into a high forceps operation thinking he has to do with a head in the pelvis, and then is astounded to find that he must exert all his strength to extract a child that is dead or dying, should learn that obstetrics has advanced in recent years, and that the high forceps is an operation that is very nearly discredited.

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THE LATER HISTORY OF THE TYPHOID CARRIER H. O.

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In two previous articles, the history[1] of a typhoid carrier, H. O., and his treatment by typhoid vaccine[2] have been reported. The more recent developments in his case show that he was not cured by the vaccination or by the extirpation of the gallbladder, and that after an interval of many months, during which typhoid bacilli could not be found in the feces, he infected other persons.

Through the courtesy of Surgeon R. M. Woodward, medical officer in command of the United States Marine Hospital in San Francisco, I have had the privilege of drawing on the records of the hospital for the greater part of the material here presented.

REVIEW OF THE EARLIER REPORTS

The sailor, H. O., was sick with typhoid fever in the United States Marine Hospital in San Francisco from Nov. 15, 1907, to Jan. 15, 1908. During a period of four years, from March 6, 1908, to March 19, 1912, he worked on several steamships, but most of the time on the *Acme*. During this period he infected twenty-seven officers and sailors with typhoid fever. Four of them died. An investigation by the San Francisco Department of Health into the cases on the *Acme* brought H. O. under suspicion as a carrier and the source of the infection. He was studied in the City and County Hospital for a period of two weeks in December, 1911, but typhoid bacilli were not found by the city bacteriologist in a series of examinations of his feces, undoubtedly owing to intermittence in the discharge of the bacilli in detectable numbers.

The State Board of Health later gathered circumstantial evidence which pointed to H. O. as a carrier responsible for the cases, and a specimen of feces obtained March 3, 1912, was found to contain many typhoid bacilli.[1] H. O. did not handle or serve food on shipboard, and it is probable that the infection was transmitted to his comrades in various ways, but chiefly through the water in a cask from which the men dipped drinking water.

March 19, 1912, Surgeon James M. Gassaway offered to admit H. O. to the United States Marine Hospital. Since that time, except for a short period of parole, H. O. has remained voluntarily at the hospital, although technically under quarantine by the California State Board of Health. Every effort has been made by the staff of the hospital to free him from the carrier state.

The article by Currie and McKeon[2] takes up the history at this point. Between March 28 and Oct. 14, 1912, specimens of feces were examined weekly and biweekly at the laboratory of the United States Public Health Service in San Francisco. The typhoid bacillus was isolated twelve times, but not later than June 19. Examination of the urine consistently give negative results.

In an attempt to cure H. O., an autogenous typhoid vaccine was administered between April 27 and June

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1. Sawyer, Wilbur A.: A Typhoid Carrier on Shipboard, THE JOURNAL A. M. A., May 4, 1912, p. 1336.
2. Currie, Donald H., and McKeon, F. H.: History of a Typhoid Carrier, THE JOURNAL A. M. A., Jan. 18, 1913, p. 183.

28, 1912, in ten doses increasing from 25 million to 1,500 million bacilli. As typhoid bacilli could not be found in the stools from June 19 to October 14, a period of nearly four months, it was suspected that the treatment had resulted in a cure, but Currie and McKeon held their final conclusion in reserve pending more prolonged observation.

PERSONS INFECTED DURING THE PATIENT'S PAROLE

When the long series of examinations of the feces of H. O., made at the laboratory of the United States Public Health Service, and also two examinations made Aug. 9 and 27, 1912, in the State Hygienic Laboratory, had failed to reveal typhoid bacilli, it was agreed by Surgeon Woodward, the California State Board of Health, and the Health Department of San Francisco that it would be safe to release him temporarily from quarantine. He was discharged from the hospital, Oct. 14, 1912. He signed an agreement to report to the Marine Hospital for examination once a month for six months. It was understood that this provisional release from quarantine would be made permanent at the end of that time if his condition remained satisfactory. He reported according to the agreement, and examination of his feces continued to give negative findings. He was employed from Oct. 20, 1912, to about Jan. 10, 1913, as winch driver on the steamer *Noyo* of the coastwise lumber trade.

Nov. 15, 1912, a seaman, O. H., from the *Noyo* was admitted to the United States Marine Hospital in San Francisco for typhoid fever. He recovered and left the hospital Jan. 14, 1913.

Another seaman from the *Noyo*, F. C., was admitted to the same hospital for typhoid fever, Dec. 23, 1912. He had a severe and typical attack. The Widal test was positive. He died, December 28.

Jan. 9, 1913, a sailor, L. K., ill with typhoid fever, entered the United States Marine Hospital in Los Angeles. He had been on the *Noyo* from Dec. 16 to 24, 1912, and in all probability had been infected between those dates. The diagnosis was confirmed by a positive Widal test. This patient recovered.

It seemed highly probable that these three sailors had received their infection from H. O. while working with him on the *Noyo*, a ship previously free from typhoid fever. The captain and crew of the *Noyo*, knowing about the experience on the *Acme*, suspected that this was the case. As a result H. O. was discharged about Jan. 10, 1913, and the seamen's union asked the Marine Hospital to make an investigation.

The investigation was made by Passed Assistant Surgeons D. H. Currie and H. G. Ebert of the United States Public Health Service. It showed that the conditions on the *Noyo* were favorable for the transference of typhoid fever from a carrier among the crew to the other sailors. The men secured their drinking water from a dilapidated water tank having a common drinking cup tied to it. In using the cup the hand was partially immersed, and pollution of the water in the tank was inevitable. Moreover, this tank was situated near the water-closet, which was in an unclean condition at the time of the inspection. The investigators suspected that H. O. was the source of the infection and recommended that he be again placed in quarantine at the Marine Hospital, and that the nature of the water containers used on coastwise vessels entering the port of San Francisco be called to the attention of the State Board of Health. The investigators expressed the opinion that a tight container for drinking water with a faucet would greatly lessen the chances of infection if a carrier were aboard, and that the arrangement exemplified on the *Noyo* was a constant menace to sailors. The conditions for transfer of infection on the *Noyo* were very similar to those found earlier on the *Acme*.[1] The open water-cask of the latter vessel had furnished an obvious opportunity for the transfer of infection.

The series of typhoid cases on the *Noyo* stopped when H. O. was discharged, just as the long series on the *Acme* had abruptly terminated when he left that ship.

Jan. 17, 1913, H. O. was readmitted to the United States Marine Hospital in San Francisco, and was again placed under quarantine by the State Board of Health. During the three months of his parole he had infected three persons, one of whom had died.

REMOVAL OF GALLBLADDER

Examination of the feces of H. O., Dec. 27, 1912, and Jan. 23 and Feb. 6, 1913, failed to reveal the typhoid bacillus, but it was present in a specimen obtained January 28. This positive specimen proved that the patient was still a typhoid carrier, a conclusion already reached on account of the infections on the *Noyo*.

At that time the existing literature gave considerable assurance that chronic carriers discharging typhoid bacilli in their feces usually owed their condition to a diseased gallbladder, and that its extirpation would result in a cure. After mature consideration Surgeon Woodward recommended removal of the gallbladder, and H. O., anxious to be freed from the danger of harming others, consented to be operated on. Feb. 12, 1913, Surgeon Woodward operated on H. O. and removed the gallbladder and its duct. H. O. rapidly regained his usual good health.

The gallbladder, contrary to expectations, contained no gallstones and was normal. A painstaking bacteriologic examination at the laboratory of the United States Public Health Service in San Francisco showed that the contents of the gallbladder did not contain typhoid bacilli, although colon bacilli and a few other organisms were present. In this carrier the gallbladder was not the focus at which the intermittent infection of the intestinal contents originated. It may, nevertheless, have been a place favorable to the multiplication of typhoid bacilli received in the bile from a focus in the liver, if such a focus existed.

After the operation, frequent examinations of the feces of H. O. were made. Nine examinations from March 4 to April 1 were negative. April 8, 1913, a specimen was obtained from which the typhoid bacillus was isolated. The removal of the gallbladder, like the treatment with typhoid vaccine, had failed to cure the carrier state. In necropsies it has been shown a number of times that the gallbladder of a typhoid carrier may be free from typhoid bacilli. Bindseil,[3] Messerschmidt[4] and Goebel[5] have reviewed the literature and have presented cases of their own. In five out of twenty-two thorough necropsies on chronic typhoid carriers, the typhoid bacillus was not present in the gallbladder. In the series of twenty-two cases, the typhoid bacillus was not infrequently found in the gallbladder and in the bile ducts of the liver, usually in the contents, and sometimes in the walls. In rare instances it was found in the spleen, and in single instances in the bone marrow, lung, and (in the presence of tuberculous lesions) in the suprarenal and kidney.

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[3] Bindseil: Bakteriologischer Sektionsbefund bei einem chronischen Typhusbazillenträger, Ztschr. f. Hyg. u. Infectionskrankh., 1913, lxxiv, 369.

[4] Messerschmidt, T.: Bakteriologischer und histologischer Sektionsbefund bei einer chronischen Typhusbazillenträgerin, Ztschr. f. Hyg. u. Infectionskrankh., 1913, lxxv, 411.

[5] Goebel: Bericht über das Sektionsergebniss bei zwei chronischen Typhusbazillenträgern, Ztschr. f. Hyg. u. Infectionskrankh., 1914, lxxviii, 555.

LATER EXAMINATIONS

From April 10, 1913, to April 7, 1915, a period of two years, the feces of H. O. were examined seventy-one times and typhoid bacilli were found in only three specimens, obtained Nov. 28 and Dec. 5, 1913, and Feb. 11, 1914. During the last fourteen months of this period, forty-two examinations were made and all gave negative results. In the examinations a suspension of the feces in broth or sterile water was streaked over the surface of Endo or Drigalski medium, or both. After proper incubation the typhoid-like colonies were studied further by cultural and serologic methods.

ISOLATION OF THE TYPHOID BACILLUS FROM THE STOMACH CONTENTS

When the examinations of feces had given negative results for over a year, Assistant Surgeon N. E. Wayson, medical officer in charge of the laboratory of the United States Public Health Service in San Francisco, used a method suggested by Carnot and Weill-Hallé.[6] On two occasions he obtained bile for examination by feeding H. O. 150 c.c. of olive oil on an empty stomach and removing the stomach contents one hour later through a stomach tube. After allowing the stomach contents to stand, he removed and examined the lower layer, containing the bile. In the first specimen, obtained Jan. 26, 1915, typhoid bacilli were not found, but an organism was isolated which resembled the paratyphoid A bacillus. From a second specimen, obtained in the same way, March 16, 1915, the typhoid bacillus was isolated. An examination of the feces eight days earlier had been negative. The finding of typhoid bacilli in stomach contents containing bile showed that H. O. was still a carrier, March 16, 1915, and suggests that the bacilli may have come with the bile from the liver.

ISOLATION OF THE TYPHOID BACILLUS FROM FECES OBTAINED BY PURGATION

April 12, 1915, H. O. was given podophyllum in the evening. The following morning magnesium sulphate was administered. During the next twenty-four hours three stools were obtained. The first was firm, like most of the stools from H. O., and the second was soft. Typhoid bacilli could not be found in these two specimens. The third stool was semi-fluid, and Dr. Wayson found that it contained typhoid bacilli in large numbers. During the preceding fourteen months, typhoid bacilli had not been found in the feces of H. O.

When H. O. was being investigated by the State Hygienic Laboratory in March, 1912, a semifluid stool containing very many typhoid bacilli was obtained after the administration of fluidextract of cascara and magnesium sulphate.[1] It was suspected that active peristalsis increased the number of typhoid bacilli in the feces by stimulating the flow of infected bile (or other material), or possibly by enabling more of the typhoid bacilli to survive some unfavorable condition in the intestinal contents.

VIRULENCE OF THE TYPHOID BACILLUS FROM H. O.

That the typhoid bacilli from H. O. were highly virulent had been repeatedly shown by severe and fatal cases among the sailors who came in contact with him. Additional evidence was obtained through an accident in the State Hygienic Laboratory.[7] June 15, 1914, an assistant engaged in making an antityphoid vaccine attempted to transfer with a pipet a suspension of live typhoid bacilli of the strain originally obtained from the feces of H. O., March 3, 1912. A small amount of the suspension was drawn against the tip of the tongue and the teeth. The mouth was at once washed out repeatedly with 50 per cent. alcohol. Nine days later the symptoms of typhoid fever began with headache. The course of the disease was mild and brief. The temperature did not go above 39.6 C. (103.2 F.) and returned to normal on the ninth day of the illness. The Widal test was negative at the onset, but strongly positive later. This accident showed not only that the typhoid culture isolated from H. O. was virulent, but also that a culture which had been grown on nutrient agar for two and a quarter years and transferred at least monthly was still capable of producing typhoid fever in human beings.

SUMMARY AND CONCLUSIONS

1. Although frequent examinations of the feces of the typhoid carrier H. O. gave negative results for four months after he had been treated with autogenous typhoid vaccine, he infected three persons when subsequently released from quarantine on parole. The total number of persons infected by this carrier is thirty, including five who died.
2. In a further attempt to cure this carrier, the gallbladder and its duct were removed surgically, but the typhoid bacillus was found in the feces several times after the operation. Examination of the gallbladder showed that it was normal and that its contents were free from typhoid bacilli.
3. After forty-one successive examinations of feces during a period of fourteen months, all with negative results, the typhoid bacillus was isolated from stomach contents containing bile.
4. Certain typhoid carriers are unusually dangerous and must be controlled by quarantine or other adequate supervision.

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[6] Carnot and Weill-Hallé: Method for Determining the Presence of the Bacillus Typhosus, abstr., Paris Letter, The Journal A. M. A., Jan. 16, 1915, p. 260.

[7] Sawyer, W. A: A Typhoid Infection Contracted in the Laboratory, Month. Bull. California State Board of Health, 1914, x, 80.

Health Leaflets.—The Bureau of Public Health Education of New York City, in cooperation with neighborhood societies, publishes and distributes monthly neighborhood chronicles in the form of a four-page health leaflet, containing on the first page local news of the paricular district of the city from which the leaflet will be distributed. They will be issued from about ten different sections of the city. The remainder of the matter in the leaflet will be the same in each. The remainder of the matter in the leaflet will be the same in each. This is expected to be an effective means of reaching the public in regard to health matters which affect them most closely. The leaflets will be distributed from house to house by the neighborhood associations.

RECOVERY IN TWO CASES OF STREPTOCOCCUS MENINGITIS FOLLOWING LUMBAR LAMINECTOMY AND DRAINAGE

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AND

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The mortality of streptococcus meningitis is so very high that any method of treatment which offers even a slight possibility of a cure of this condition is deserving of our consideration. While the treatment which we have employed is not a new one, it has proved so successful and so rapidly ameliorative that we believe it should be given a more extended trial.

In 1914, Barth[1] reported recovery in three cases of streptococcus meningitis following lumbar laminectomy and drainage. It was our good fortune shortly after this to have admitted to the surgical ward of the St. Louis City Hospital the following cases:

Case 1.—*History.*—L. B., an Italian laborer, aged 65, was brought to the City Hospital, Oct. 27, 1914, at 12:50 p. m., complaining of pain in the back of his neck, vomiting for the last three days, and pains in his legs. He was very stupid and spoke little English. Questioning elicited the following indefinite history: About three weeks before he entered the hospital, he fell about 7 feet from a huckster's wagon, alighting on his head, neck and shoulders. He suffered a laceration of the scalp, and was unconscious for a few moments. Following this accident, he was unable to work because of pain in his head, weakness, nausea, and "whistling in his ears." He remained at his employer's for three weeks under home treatment, until the present attack began, at which time he was brought to the City Hospital. He was a wandering Italian laborer, and unfamiliar with the country. He was injured in a rural district, some miles from the city, and long distance telephone communication with his employer failed to add anything to the foregoing history.

Examination.—The patient was fairly well nourished and developed, and was conscious, but dazed. General physical examination revealed nothing, except those changes due to oncoming senility. Neurologic examination: Pupils small, left smaller than the right, regular in outline, react to light and accommodation; facial contraction apparently equal, tongue deviates slightly to the right; neck rigid; upper tendon jerks equal, but very active; abdominal and cremasteric reflexes equal, but active; knee-jerks equal, but very rapid; Achilles active and equal; no ankle clonus, no Babinski, Chaddock's external malleolar sign positive on the right; double Kernig; lower extremities hypersensitive; patient disoriented as to time and person, and speech is rambling if attention is not held. Temperature 97.6, pulse 72.

At 8:30 p. m. or seven hours later, the patient was unconscious, and could not be aroused. Examination revealed a very rigid neck, abdomen retracted and hard, a double Kernig sign, and Babinski with Chaddock's external malleolar sign. Temperature 98.4, pulse 62. On lumbar puncture, a turbid fluid escaped under pressure. Examination of a centrifuged specimen showed numerous pus cells, with extracellular organisms resembling streptococci. Bouillon and agar cultures examined the following day showed pure cultures of streptococci. After lumbar puncture, the diagnosis of purulent meningitis was justified, and immediate operation advised.

Operation.—The patient was prepared for operation, and at 11 o'clock, under spinal anesthesia, a typical lumbar decompression was performed. The spinal anesthesia was a complete success. An incision was made over the third and fourth lumbar vertebrae. The muscles were separated from the spines of the third and fourth vertebrae, and when the bleeding was controlled, the spinous processes were removed at the base with bone forceps. The Hudson burr was used to perforate the laminae at the base of the divided spinous process, and the rest of the laminae were removed with rongeur forceps. The ligamentum subflavum was then incised to expose the dura of the cord. In order to prevent the too rapid escape of the spinal fluid, it was thought best to lower the head of the table. The dura was then incised and a free escape of turbid fluid took place, which was readily controlled by gauze sponges. A rubber dam was then inserted to the dura and the wound carefully closed in layers except for the drain in the lower end of the wound.

The postoperative course of this case was uneventful, except for loss of sphincter control for a period of about nine days. His temperature was never above 99 degrees; he regained consciousness after two days and complained of having headache for several days. Neck rigidity disappeared on the fifth day following operation, and Kernig's sign disappeared several days later. The drain was removed on the fifth day following operation. On the fourteenth day, the patient was up in a wheel chair, and was walking two days later. Cerebrospinal fluid escaped from the wound almost until the time of his discharge, but the wound closed externally with slight meningocele. He was discharged, recovered, Nov. 27, 1914.

Case 2.—*History.*—M. K., a schoolgirl, aged 8, was brought to the City Hospital Dec. 16, 1914, with the following history: Five weeks before, she had become ill with an attack of tonsillitis, to which she was subject. She apparently recovered from this attack, but about three weeks ago her ears began to ache, and a family physician, who was called, put drops in her ears, which gave her relief. At this time, a swelling about the size of a walnut appeared behind her right ear, but soon disappeared. December 13, the patient again became ill, complaining of severe headache, and was brought to the hospital three days later. On her entrance to the hospital, the child appeared quite ill. She was conscious and rational, but cried and moaned from pain in her head. She vomited several times the day of her entrance. General physical examination revealed no gross lesions; pupils were equal and reacted to light and accommodation; tonsils were large and injected; her neck was slightly stiff, but yielded to manipulation with some pain; she had slight tenderness over the right mastoid. Temperature 99.8, pulse 92. Neurologic examination elicited no pathologic reflexes; Kernig's sign was not present. At this time, a provisional diagnosis of mastoiditis was made.

For three days following her entrance to the hospital she rested well, with no medication. An ice bag was applied to the right mastoid region. Rather suddenly on the evening of December 19, three days after entrance, her temperature rose to 100.4, she complained of severe headache, and examination showed a rigid neck and a double Kernig. A lumbar puncture produced 20 c.c. of bloody fluid. By the next morning she had developed an internal strabismus, neck rigidity was marked, Kernig's sign was very pronounced, and her temperature was 103.4, pulse 120. A lumbar puncture resulted in 20 c.c. of cloudy fluid. Examination of a centrifuged specimen revealed many leukocytes with streptococci. Cultures examined the next day showed pure cultures of streptococci. At 6:30 p. m. an operation was advised and lumbar decompression performed.

Operation.—Under ether anesthesia a 2-inch incision was made over the third lumbar vertebra. The muscles were separated from the spines and the third and fourth spinous processes were removed with bone forceps. The Hudson burr was then used to trephine through the laminae at the base of the divided spinous process. The ligamentum subflavum was then incised and the dura exposed. At this point the head of the table was lowered to prevent the too rapid escape of the spinal fluid. The dura was then incised and a turbid fluid escaped. A rubber dam was then placed on the dura and the muscles were sutured in place and the skin closed, except at the lower angle where the drain came out.

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[1] Barth: Arch. f. klin. Chir., 1914, cv; abstr., The Journal A. M. A., Oct. 24, 1914, p. 1509.

The postoperative course of this case was much more severe than in Case 1. The temperature varied from 102 to 101 F., and did not reach normal until January 4. The most striking and alarming feature was a rapid pulse, which remained 128 to 140, until January 4, when it dropped to 96. The patient complained of backache and headache for about four days following the operation. For two weeks following the operation, she was rather weak, but while her convalescence was slow and prolonged, attention must be called to the fact that symptoms of meningeal irritation were never prominent, and after the fifth day there was no evidence of meningeal irritation otherwise than a slight rigidity of the neck and a spasticity of the limbs, which remained until about January 10. After the fourteenth day, convalescence was progressive, and the patient was discharged as recovered, Feb. 6, 1915.

The result in these cases was so remarkable that we began to look up the literature on the subject, and found reference to similar operations performed by Barth,[1] Rolleston and Allingham,[2] Wynter,[3] Cushing[4] and others, although it was later on condemned by Cushing along with the operation of cerebellar decompression combined with laminectomy and through-and-through irrigation advocated by Leonhard Hill. The objection to the method of Hill as well as that of laminectomy was that the purulent exudate at the base of the skull sooner or later blocked off the escape of the cerebrospinal fluid from the foramen of Magendie, and thus defeated the purpose of the operation. That this objection is open to argument is seen by the work of Barr.[5] He trephined a patient dead from meningitis and did a lumbar puncture, leaving the cannula in place. Then he tapped the lateral ventricles and allowed a methyl blue solution to flow into the ventricles under a very low pressure, and observed the escape of the fluid from the lumbar cannula, showing that even in this patient dead from meningitis the normal channels of the cerebrospinal fluid were not blocked. Postmortem examination showed that the methyl blue fluid had found free access to the base of the brain, and the exudate was thoroughly stained by this solution. He also did the same thing in a patient on whom he had operated as a last resort, using a normal saline solution, and observed its appearance at the lumbar opening. The patient was in no ways injured by the procedure, although dying shortly after this. On the death of the patient he repeated the same thing with the methyl blue solution, and demonstrated the patency of the normal channels. Several patients have been cured by repeated lumbar punctures,[6] and Gorse[7] reports a case of recovery of a patient on whom he had performed a lumbar puncture with a Rosenthal needle, which leaves the sheath or cannula in place for permanent drainage. The patient recovered after thirteen days of continuous lumbar drainage.

Murphy[8] described an operation of drainage of the sacral cisterna with cerebellar decompression and irrigation, and reports a recovery.

Haynes[9] and Kopetsky[10] strongly favor cerebellar decompression and drainage of the cisterna magna, but reported no cures in six cases in which operation was performed in this manner. Day[11] did not get a cure in nine cases with operation by the Haynes method. In spite of strong appeals for the operation, therefore, it does not seem to fulfil the expectations of its advocate.

The successful outcome in our cases was undoubtedly due to the early diagnosis and prompt treatment, and herein may lie the secret of success in this disease. The mortality in acute purulent meningitis is very high, and unless treated surgically is almost invariably fatal. As a rule the onset of the disease is sudden. The symptoms are intense and the course is short, rapidly tending toward a fatal issue. Netter,[12] in a study of sixty-five cases, found that fifty-four died within four days. Death is the result of two factors, increased intracranial tension and toxemia. The first factor can be influenced by repeated lumbar punctures, or by permanent drainage. The second factor of toxemia may be overcome possibly by the dilution of the toxins through the rapid secretion of the cerebrospinal fluid. It is estimated that the normal secretion is replaced every three or four hours by an entirely new supply, and in abnormal conditions, as fracture or lumbar puncture, the alteration in normal tension may result in a very rapid increase in the amount of this secretion.[13]

Streptococcus meningitis is a surgical disease, just as acute purulent peritonitis is a surgical one, and here again we see the analogy; the mortality is extremely high in peritonitis unless we early establish thorough drainage. Therefore we may perhaps draw the conclusion that early operation and permanent drainage will offer a lessened mortality in acute purulent meningitis.

VISIBLE ACUTE DILATATION OF THE STOMACH DURING LAPAROTOMY

REPORT OF TWO CASES WITH OBSERVATIONS

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Frequent reports of postoperative dilatation of the stomach are made, but rarely of a case occurring which is visible through the laparotomy wound during operation. The explanations of the postoperative cases are almost as numerous as the number of cases reported. It has been said that probably more than one cause or a combination of causes may be responsible for such a condition.

I have long been of the opinion that none of the reasons heretofore named as the cause of dilatation of the stomach were entirely satisfactory. I have had the idea that in nearly all if not every case the air had been taken in through the mouth in some modified process of deglutition.

As a boy I can well remember an old horse named Charlie which, when approached for the purpose of being saddled, would gulp down large chunks of air (aerophagy), causing such distention of his belly that it was with difficulty that the girth could be properly cinched. Veterinarians are familiar with this fact relative to horses.

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[2] Rolleston and Allingham: Lancet, London, 1899, p. 889.
[3] Wynter: Lancet, London, 1891, i, 981.
[4] Cushing: Keen's Surgery, iii, 140.
[5] Barr: Brit. Med. Jour., Nov. 26, 1911.
[6] Klapp: München. med. Wchnschr., 1915, lxii; abstr., THE JOURNAL A. M. A., March 20, 1915, p. 1039.
[7] Gorse: Bull. Soc. de pédiat. de Paris; abstr., THE JOURNAL A. M. A., Dec. 17, 1910, p. 2186.
[8] Murphy: Surg., Gynec. and Obst., April, 1907.
[9] Haynes: Laryngoscope, xxii, 865.
[10] Kopetsky: Laryngoscope, xiii, 797.
[11] Day: Laryngoscope, xxiii, 1041.
[12] Netter: Osler's Modern Medicine, vii, 176.
[13] Seelig and Hagler: Interstate Med. Jour., March, 1915, p. 248.

The two cases reported here with observations may possibly throw some light on this condition.

Case 1.—A. G., woman, white, aged 22 years, admitted to the Harlem Hospital, Monday, Sept. 29, 1913, had a negative family history, and the previous history was negative except for two attacks of appendicitis. On the preceding Friday the patient was seized with general abdominal pains which after twenty-four hours localized on the right side, in the lower quadrant of the abdomen. The patient had been nauseated but had not vomited; had had fever, and bowels had been constipated. She was brought to the hospital in an ambulance.

Examination.—The patient was fairly well nourished and developed, conscious and rational. Pupils were equal and regular, reacting normally to light and accommodation. Mucous membranes were clean and moist. Tongue was slightly coated. Throat clear. Heart was normal in outline and position; sounds clear, no murmurs heard. Pulse was regular and of good force and tension, increased in rate. Lungs were clear. Breasts were full and soft, and there were no masses or tender areas. The right side of the abdomen was rather rigid, tender and tympanitic; no masses were felt; there was no shifting dulness. Liver, spleen and kidneys were *not* felt. Skin was clear. Extremities were normal. Lymph nodes were not enlarged. Reflexes, knee jerk. Sexual organs were negative. Urine was clear, amber, specific gravity 1.020, acid; after operation, specific gravity was 1.015. Albumin, glucose, casts, leukocytes negative; few epithelia.

BLOOD EXAMINATIONS

	Sept. 29, 1913	Sept. 30, 1913	Oct. 1, 1913
No. cells counted......	100	100	100
Leukocytes	10,000	9,400	10,400
Polymorphonuclears	70%	67%	64%
Lymphocytes	30	30	30
Transitionals	1	3	6

Temperature was 102, pulse 80, respiration 20 on admission. Widal partial agglutination but no complete loss of motility. Dil. 1:40, time thirty minutes.

Operation.—Oct. 1, 1913. Nitrous oxid and ether anesthesia, Bennett and open, nitrous oxid gas two bags, ether 3 ounces, was begun at 2:55 p. m., and stopped at thirty minutes. Total time of operation was twenty minutes. Anesthesia was maintained for twenty-five minutes. Anesthesia before operation, ten minutes. Patient took anesthesia well. Skin was prepared by painting with iodin, 3.5 per cent., as usual. A right rectus incision 3 inches long was made through the abdominal wall into the peritoneal cavity. A cecum mobile was found, and an appendix that showed only slightly external inflammatory changes; tubes and ovaries were normal. The appendix was clamped, mesentery ligated, then removed. At this point patient began to swallow (?) air, and the stomach became markedly distended and presented itself at the laparotomy opening, extending well beyond the lower angle of the incision until the lower border of the stomach had reached the brim of the true pelvis. The stomach did not look pale with thin walls, as one would naturally expect from such distention, but it was solidlike, and looked more like a solid mass as a fibroid of the uterus with its red congested color and distended engorged vessels. The finger could hardly indent the wall of the distended stomach. The hand could not possibly be introduced through the wound into the abdominal cavity. It was absolutely blocked by the distended stomach. A stomach pump was hastily inserted with the greatest ease, meeting no obstruction at the cardia. The distal end of the pump was submerged in water. An enormous volume of gas was expelled, as evidenced by large bubbles that appeared in the water. The stomach began to empty and immediately returned to the normal. The abdominal wound was closed with No. 2 plain catgut in three layers, and the usual sterile dressing applied. At the time I was most impressed by the absence of epigastric protrusion or other evidences of abdominal distention. The patient made an uneventful recovery.

Pathologic Report.—The specimen is an appendix 2 inches long, white, no adhesions, no perforations, vessels slightly injected. Histologically, sections show muscularis and peritoneal coats normal, mucosa slightly thickened and infiltrated, small follicular ulcers present on mucosa.

Diagnosis.—Acute catarrhal appendicitis.

Retrospective History (by Dr. Reilly).—For the past three years the patient has been troubled with constipation. For the past year she has been complaining of other digestive disturbances about once a week; she would have attacks of sharp pain in the epigastrium, going through to back; by lying flat on her abdomen the pain would disappear gradually. It was relieved mostly by belching; the patient never vomited. There were no diarrhea, no acid eructations, no heartburn. Dizziness had been almost constant since June last. This dizziness was so marked the last few weeks that the patient had to rest after dinner each day in order to obtain relief. She says she ran a race last spring while at a picnic; at the finish she was seized with sharp pains in the right iliac region. The pain lasted about a week.

Case 2.—H. P., white man, aged 29 years, admitted to the Harlem Hospital Jan. 9, 1914, with unobtainable previous history, had been very constipated for a year and had had epigastric distress and pains. Pains came on usually from one to three hours after meals. It was impossible to get details of good history. He complained of gas and belching. For the last two weeks the pains had been very bad and he had been obliged to stop work and stay in bed. On several occasions, but especially in the last two weeks, he would wake up with his mouth full of what he thought was blood, which was dark in color. He had no cough, no shortness of breath, had never vomited, and had never seen blood in stool, but it had been very dark on several occasions. There had been no urinary disturbances.

Operation (for gastro-enterostomy).—Anesthesia, gas and ether, Bennett and open, two bags of gas, ether 5 ounces, was begun at 2:25 p. m.; operation, forty minutes; anesthesia, one hour; anesthesia before operation, ten minutes.

While the stomach, which had been pulled partly through the laparotomy wound, was being examined, it suddenly commenced to enlarge. We could distinctly feel and hear large gulps of air (?) entering the stomach and hear a noise in the throat; yet the patient was apparently not swallowing; that is, the thyroid cartilage was apparently still and there was no visible motion of the throat. The stomach was getting larger and larger and so tense that for a moment we were concerned with fear that it should rupture. Firm pressure was being made on the stomach, and an attempt was also made to replace that portion of the stomach outside within the abdomen; but it could not be done. A stomach pump was inserted with the outer end submerged in a basin of water, and large volumes of gas escaped, making itself manifest by bubbling up in the water. The stomach immediately returned to normal size and we proceeded with the examination. A healed-over gastric ulcer was found near the pylorus. A posterior no-loop gastro-enterostomy was performed. The patient made an uneventful recovery, and did not have any further dilatation of the stomach.

Retrospective History (by Dr. Reilly).—Complaint dated back two years. Pain comes on as usual immediately after meals and lasts from fifteen to twenty minutes. Patient has lost 7 pounds during the last year. Has bitter taste in mouth in the morning. Immediately after bowels move, he has severe pain in epigastric region above umbilicus often accompanied by sour eructations. The pain after meals often radiates to the back like a needle sticking him. Urine negative, sputum negative.

Blood Count.—Cells counted, 100; leukocytes, 9,000; erythrocytes, 5,200,000; polymorphonuclears, 72 per cent.; lymphocytes, 20 per cent.; hemoglobin (Sahli) 97 per cent.

It is interesting to note that there was wide divergence in opinion of all those present at both operations as to whether or not the patients swallowed. While we all agreed that we heard the noise in the throat in both cases, it was variously described. We mostly agreed that it was not an ordinary deglutition act. I believe that it was a reflex deglutition act—a kind of clonus of the muscles of deglutition so rapid as almost to escape detection, a spasmodic deglutition of air (aerophagy).

Common to the two cases was the very rapid noise in the throat, and no discoloration of the water in which the tube was submerged. It was a colorless gas that escaped. The stomach was absolutely empty; no fluid, no solid particles escaped through the tube in either case. Neither patient vomited or had abdominal distention after the operation. Neither of the patients had swallowed the anesthetic at the beginning of the anesthesia.

In Case 2, while the stomach was being held in our hands, it felt as if one was holding a gas bag while it was being filled intermittently with volumes of gas. Not only could we hear the noise in the throat and the rush of air into the stomach, but it could also be distinctly felt.

After my experience with the first case I determined to do certain things with the next case should I ever be so fortunate as to observe again such a condition. For instance, I had determined to collect the gas in a bell jar under water in order to ascertain if we had a sudden rapid elimination of gas into the stomach from some very complicated source of which at present we know little or nothing; but when the second case presented itself it came so suddenly and took us so by surprise that we were so much concerned not to let the stomach rupture that we neglected to do those things. It must be understood as a matter of course that the stomach always contains a certain quantity of gas, derived partly from gases swallowed with the saliva, partly from gases which pass backward from the duodenum. The saliva contains much more carbon dioxid than an equal volume of venous blood, a part of which is set free by the acids of the stomach. The air in the stomach is constantly undergoing changes whereby its oxygen is absorbed by the blood, and for one volume of oxygen absorbed, two volumes of carbon dioxid are returned to the stomach from the blood. Hence the amount of oxygen in the stomach is small and the carbon dioxid considerable.

If this be true, then it is not necessary for the patient to swallow the entire volume of air necessary for a given distention for two reasons: First, there is some slight increase in volume from expansion due to the increase in temperature in the stomach of from 20 to 30 F. above the temperature of the air of the operating room. The coefficient denoting the increase in volume for 1 degree F. of air whose elasticity is constant equals 0.002039, and it is probably higher; for the air heavily laden with the more expansive ether fumes, however, it is a negligible increase, to be sure, as compared to the second, the possible sudden doubling of its volume through the more complex mechanism of the interchange of gases.

The fact that both cases showed clear gas from the stomach demonstrates that if the elimination of the black hematogenous highly toxic material common to some forms of sepsis and intestinal paresis comes from the mucous membrane of the acutely dilated stomach, then it does not escape until the distention has been maintained for a definite period. About this time I commenced to watch carefully after operation my patients who were having gastric dilatation, and they were frequently observed, particularly the nervous, high strung sensitive ones, wetting their lips with the tongue, then rolling up a combined bolus of air and saliva, and frequently swallowing. One little fellow in particular who had been operated on for abscess appendicitis with considerable peritonitis had to have his stomach washed two and three times a day because of the gastric dilatation and black vomit. He did not need another washing after being cautioned to cease swallowing. I now regularly instruct patients of this type that they must not swallow air.

Although Braun and Riedel, after considerable experimental work, concluded that they found no evidences of a valvular closure of the cardia, we could not empty by forcible pressure of four hands the stomach of Case 2, but in spite of our efforts to empty the stomach, at each gulp (?) more air would enter and none leave, as if there was a valvelike action somewhere, probably at the cardia.

Considering the enormous mortality of postoperative acute gastric dilatation, variously estimated at from 63 to 75 per cent., I am impressed most by the rapid recovery of both patients without after-effects. The lesson is perfectly obvious; early emptying of the stomach before the overdistention injures the capillaries of the mucosa, and the consequent rapid filling with enormous volume of highly toxic fluids supervenes. The high mortality is due to a too late recognition of the true condition. Acute dilatation of the stomach must be maintained for some time before it can be observed as a distention of the abdomen.

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THE PROGNOSIS OF AURICULAR FIBRILLATION *

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I shall endeavor to emphasize a fact in relation to patients with auricular fibrillation which seems to me to have attracted much less attention than is due to its importance; that is, that the presence of the irregularity does not greatly increase the gravity of the prognosis.

We have a fair idea of the amount of restricted activity imposed by the different lesions of the cardiac valves, but we are only lately coming to realize that an irregular heart does not of necessity seriously cripple the individual. Sinus arrhythmia we know may be disregarded, and usually looked on as normal; extrasystoles do not seem to lead to hypertrophy or cardiac failure even when present constantly over long periods of time; but the continuous irregularity of auricular fibrillation has been considered a grave abnormality of function. My endeavor will be to point out how this impression arose, and how it should be qualified.

The inception of fibrillation sometimes comes as a distinctly sudden event in the course of the patient's history, with the prompt appearance of symptoms of

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* Read before the Section on Internal Medicine of the New York Academy of Medicine, March 16, 1915.

considerable severity. In these cases the heart rate is rapid from the start, in the neighborhood of 120 per minute. Most frequently the rate at onset is slower than this, in the neighborhood of 80 per minute, and this rhythm may be present for a considerable time without symptoms on the part of the patient. On attempting moderate exertion, the rate increases and dyspnea, palpitation or precordial discomfort appear, though at first they do not persist for long. Without treatment, the course is one of progressively increasing limitation of activity. The dyspnea or other symptoms appear with less provocation, the heart rate is more rapid in the intervals, edema appears and the patient is confined to his room or his chair. The heart cannot maintain its efficiency with the shortened diastole resultant from the rapid ventricular rate. It tires more and more easily and is finally completely unable to carry on a sufficient circulation.

This breaking down of the cardiac reserve takes a variable amount of time, the variations depending perhaps on the quality of the cardiac muscle, on the demands the patient makes on his heart, or on the associated pathologic conditions, for fibrillation rarely occurs in an otherwise normal individual. My impression is that this period of failure varies from two or three to many months, though it is usually impossible to mark exactly the time of onset of the irregularity.

Under energetic treatment with digitalis the cardiac failure in either type of case is promptly corrected. Twenty minims of the tincture four or five times daily, or an equivalent amount of the other preparations will usually relieve the dyspnea and palpitation in 24 to 48 hours, and by the fourth day the patient is quite comfortable and the heart rate reduced to 85 or 90. By reducing the dosage of digitalis properly its toxic effects can be avoided, and the heart rate kept in the neighborhood of 60 to 80 per minute. The patient will recover his strength and be able to go about, and will be discharged. He is now, from the physiologic standpoint, just where he was at the onset of fibrillation, except that the heart has suffered from the dilatation and will the more readily increase in rate when called on for extra effort. Increased rate means shortened diastole — that is, a shortened period of rest — and in a month or more cardiac insufficiency is well reestablished.

To show what is often the course in such a case I will introduce the history of a man aged 63, with a heart moderately enlarged, and irregular, but no murmurs. He was first seen in December, 1913, having had edema of the legs at various times for four years, with varying dyspnea on exertion. After three weeks he was so well that he stopped treatment. He returned in May, 1914, again with failing heart, and stopped treatment after two weeks feeling well. He returned with cardiac failure in September and November, 1914, and in January and March, 1915, each time stopping treatment as soon as he felt well. This man is a janitor and does sweeping and cleaning only, having no heavy work.

This is the cycle which gave to auricular fibrillation its bad repute. The chronic circulatory disability with periods of marked cardiac failure, afforded a most unpleasant outlook. We are learning now how to avoid this. The patient must not be discharged when he has recovered his strength after the dilatation, but must be kept under observation, must continue the digitalis, must in fact take enough of this drug so that its effect on the vagus will maintain the heart at its optimum rate, usually about 70 per minute. In my experience this amount of digitalis has varied from 20 to 40 minims of the tincture daily in divided doses.

If by this means we maintain the heart at its optimum rate, the mere fact of irregularity seems to have little if any harmful effect on the patient's cardiac reserve under conditions of strain, and he is not subjected to those periods of circulatory failure which otherwise are a certain though irregular occurrence.

To illustrate what can be done toward making the patients comfortable and even useful and how much this gloomy prognosis must be modified, I will cite some cases under observation at present, in which the patients are able to be about and to work in spite of their irregularity, and some of them are performing unusual physical exertion. Besides the fibrillation, some of these patients have lesions which are of considerable gravity, and these lesions must be taken into account in considering the extent of the patient's disability.

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Case 2.—A man, aged 61, with mitral stenosis and auricular fibrillation, was first seen in August, 1914, with a history of dyspnea on exertion, of varying severity for a period of three years. For two weeks he had had marked palpitation, dyspnea on walking and severe precordial pain. There was no edema. The heart rate was 145 per minute. This man is a janitor, and besides considerable sweeping and brass polishing has to keep a large coal furnace going. After a month, by September, 1914, he was able to work and has continued to do so, taking 10 minims of the tincture three times daily. His heart rate is about 70 per minute. During December he was called on to shovel coal into the cellar. He could not do this for more than half an hour without palpitation and dyspnea. This is the only occasion on which he has complained of cardiac symptoms during his eight months under treatment.

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These patients are all in excellent condition at present and have continued so as long as they have remained under treatment, a period varying from seven months to three years. They are free from cardiac symptoms under the ordinary demands of their life. Two of them, Patients 1 and 2, show inability to do work of a very severe character which most of the others have not attempted; Patient 4, on the other hand, had he a regular heart, would be considered to have a remarkable degree of cardiac reserve for one with mitral stenosis.

From the course of these patients we might be able to draw two conclusions, one as to the treatment of such cases and one as to their prognosis. The question of treatment I shall not dwell on because it is pretty generally felt by now that patients with auricular fibrillation should have continual observation and almost continual medication even though they are about and feeling well. The heart needs a sufficient period of rest between beats in order to avoid fatigue and maintain its functional integrity, and this prolongation of diastole can only be obtained by keeping the heart slowed by digitalis to about 70 beats per minute. For this purpose very small doses do not suffice; at least 10 minims of the tincture, twice daily, are usually necessary.

The question of prognosis I wish most to emphasize. It should not be so gloomy as it is at present. Here are seven patients having this irregularity. They are all comfortable, all but one at work, and some of them are performing exercise of no inconsiderable severity. They are doing this, not only in spite of their irregular heart action, but also in spite of the endocarditis, hypertension or myocarditis which is present in each respective case. Were the irregularity of such serious import as it is often considered to be we could not have patients so free from discomfort as these are for such long periods of time.

Cowan, in his recent book, states that the prognosis in this type of irregularity is always more grave than in comparable cases with sinus rhythm. "The inception of permanent auricular fibrillation is the beginning of the end, though many patients are able to lead quiet lives for a year or two." Lewis, in Osler's System of Medicine, says that fibrillation "loads an already defective muscle with an extra burden, the burden of increased ventricular rate and shortened diastole."

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SUMMARY

The continuous irregularity of auricular fibrillation has been looked on as causing a poor prognosis. This is due to stopping treatment as soon as the patient recovers from an attack of acute cardiac failure.

By continuing the digitalis in sufficient quantity to keep the heart slowed to about 70 beats per minute, there will not be a recurrence of the cardiac failure.

Seven such cases are cited in which the patients have remained under treatment without cardiac symptoms for periods of from seven months to three years, considerable severity. In these cases the heart rate is rapid from the start, in the neighborhood of 120 per minute. Most frequently the rate at onset is slower than this, in the neighborhood of 80 per minute, and this rhythm may be present for a considerable time without symptoms on the part of the patient. On attempting moderate exertion, the rate increases and dyspnea, palpitation or precordial discomfort appear, though at first they do not persist for long. Without treatment, the course is one of progressively increasing limitation of activity. The dyspnea or other symptoms appear with less provocation, the heart rate is more rapid in the intervals, edema appears and the patient is confined to his room or his chair. The heart cannot maintain its efficiency with the shortened diastole resultant from the rapid ventricular rate. It tires more and more easily and is finally completely unable to carry on a sufficient circulation.

This breaking down of the cardiac reserve takes a variable amount of time, the variations depending perhaps on the quality of the cardiac muscle, on the demands the patient makes on his heart, or on the associated pathologic conditions, for fibrillation rarely occurs in an otherwise normal individual. My impression is that this period of failure varies from two or three to many months, though it is usually impossible to mark exactly the time of onset of the irregularity.

Under energetic treatment with digitalis the cardiac failure in either type of case is promptly corrected. Twenty minims of the tincture four or five times daily, or an equivalent amount of the other preparations will usually relieve the dyspnea and palpitation in 24 to 48 hours, and by the fourth day the patient is quite comfortable and the heart rate reduced to 85 or 90. By reducing the dosage of digitalis properly its toxic effects can be avoided, and the heart rate kept in the neighborhood of 60 to 80 per minute. The patient will recover his strength and be able to go about, and will be discharged. He is now, from the physiologic standpoint, just where he was at the onset of fibrillation, except that the heart has suffered from the dilatation and will the more readily increase in rate when called on for extra effort. Increased rate means shortened diastole — that is, a shortened period of rest — and in a month or more cardiac insufficiency is well reestablished.

To show what is often the course in such a case I will introduce the history of a man aged 63, with a heart moderately enlarged, and irregular, but no murmurs. He was first seen in December, 1913, having had edema of the legs at various times for four years, with varying dyspnea on exertion. After three weeks he was so well that he stopped treatment. He returned in May, 1914, again with failing heart, and stopped treatment after two weeks feeling well. He returned with cardiac failure in September and November, 1914, and in January and March, 1915, each time stopping treatment as soon as he felt well. This man is a janitor and does sweeping and cleaning only, having no heavy work.

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Seven such cases are cited in which the patients have remained under treatment without cardiac symptoms for periods of from seven months to three years,

Since these cases are all complicated by conditions of considerable gravity, and since they have performed such considerable physical exertion so long as their heart was maintained at a slow rate, it is concluded that the irregularity, per se, adds little or nothing to the gravity of the prognosis of the individual.

156 East Sixty-First Street.

TROMBIDIOSIS

GEORGE MANGHILL OLSON, M.D.
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MINNEAPOLIS

Trombidiosis, or to use perhaps a better term, trombidiiasis cutis, is a condition of the skin, due to the attacks of the red jigger. It has long been known, although it is evidently infrequently diagnosed, in spite of the fact that hundreds and thousands of cases occur in the United States each summer. In Minnesota there are many hundred cases each summer during the months of July, August and September. Diagnosis is important, as proper treatment relieves the patient of many days of suffering, amounting in some cases to a kind of torture, as Erasmus Wilson[1] has expressed it; and clears up many puzzling cases of skin disease occurring during the summer season. Synonyms are "autumnal erythema" and "harvest disease."

The parasite which causes this condition in Minnesota belongs, in the cases which I have examined, to the species *Trombidium irritans* or *Leptus irritans* (Riley). The hexapod larva only attacks man. The adult jigger has eight legs and is found on bushes, grass, etc., never attacking man. The *Trombidium irritans* or red jigger is also called the harvest bug, harvest mite, mowers' mite, red bug, chigger and gooseberry bug. It belongs to the family of Trombidiidae under the order of Acarina. There are two species in America, the *Trombidium americanus* and the *Trombidium irritans*. The *Trombidium americanus*,[2] the rarer form of the jigger in America, is pyriform in shape. It buries the anterior half of its body in the skin, causing a papular eruption. It attacks children especially, and is often found in the scalp and axilla.

The *Trombidium irritans,* the cause of trombidiosis in Minnesota and probably most of the cases of trombidiosis in the United States, is rounded or oval, and orange red. It is from 0.178 to 0.1855 mm. in length, and from 0.1295 to 0.140 mm. in breadth. It has three pairs of long legs (0.1925 mm.), covered with numerous fine hairs. These hairs are not so coarse or so numerous as those shown in the illustration in Kuchenmeister.[3] Each leg terminates in fine claws. The head shows very clearly the lancetlike piercing apparatus, by means of which the mite gets under the skin.

The *Trombidium irritans* is found here mainly on the grass and bushes near the numerous lakes and streams, especially where the soil is sandy. In Minneapolis the red jiggers are found at the sandy beaches at Lake Calhoun, often attacking the bathers at the Public Baths, causing considerable anxiety to some of them, who fear they have some serious skin disease. They are also quite frequently found at Lake Minnetonka. The red jigger may be found on grass, bushes, corn, clover, grapevines, gooseberry bushes, weeds, blackberry bushes, beans and room flowers. In England the red jigger is found especially in chalky or limestone districts near the sea. The same or a similar parasite is found on the dog, mole, fieldmouse, grasshopper, fly and mosquito.

The red jiggers or mites deposit eggs in or on the ground in the early part of July.[4] As many as 400 of these brown spherical eggs may be found massed together. After a short time the larvae with three pairs of legs appear. Normally they feed on various insects as plant lice, young caterpillars, etc. It is at this stage that they may attack man. In a few weeks, after feeding on some kind of insect, the larva changes to the mature adult mite. The mature mite is parasitic on insects, but does not attack man. The mature mite hibernates in sheltered places or in the soil and appears the next spring. There seems to be but one brood a year.

SYMPTOMATOLOGY

The *Trombidium irritans,* on finding itself on the human body, runs about very actively, and soon selects a place to bore into the skin. By means of its long legs the jigger raises its body and pierces the skin at right angles, and if possible, along a hair follicle. If undisturbed it makes its way until its body is entirely concealed in the skin, where it dies in about a week. In one or two hours the jigger has sunk its head into the skin, and the patient commences to experience a marked itching sensation. If the patient is seen at this time he will unerringly point out the location of every jigger on his body, even if forty or more are present, as in one of my cases. After ten or twelve hours the animal is completely buried in the skin. Usually marked urticarial swelling now occurs, so that often the jiggers cannot be seen, even after very careful examination. Erythematous, urticarial, papular, pustular and eczematous lesions may occur, but urticarial lesions constitute the ordinary form of the disease. The itching is greater than that from any other parasite. Banks[4] states that the red bugs burrow beneath the skin and cause intense itching. "It is an unnatural situation for the mites, and they soon die; but the waiting is not pleasant."

The jiggers are often arranged in semicircles or in the form of a necklace, especially when occurring on the body. The *Trombidium irritans* may be found on the feet, ankles, legs, arms and, especially in women, about the breasts and waist line. Fever may be caused by the jiggers in some cases. Some persons are immune and never suffer from attacks of the *Trombidium irritans,* even when in badly infested places, where their companions are severely attacked. Other persons are frequently attacked even when they stay a short time in places that are not badly infested. The reaction of different individuals also varies, some having marked urticarial lesions, and others simply an erythema about the bite. The urticarial swelling about the bite is markedly increased by rubbing and scratching.

DIAGNOSIS

The disease occurs only in July, August and September. Severe itching, with an urticarial eruption on the arms, legs or trunk, in patients who are near the lakes during these months, is suggestive of trombidiosis. On close examination, the bright orange-red mite can be made out, often in the center of an urticarial papule. Trombidiosis must not be confused with the straw itch due to the *Pediculoides ventricosus*. Straw itch is caused by a similar mite, which, however is white, and does not burrow into the skin. The disease caused by the *Sarcopsylla penetrans* or "jigger flea" does not occur here.

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[1] Wilson, Erasmus: Diseases of the Skin, 1857.

[2] Duhring, L. A., and Stelwagon, H. W.: Pepper's System of Medicine, 1886, iv.

[3] Kuchenmeister, Frederich: Manual of Parasites, Sydenham Society, 1857.

[4] Banks, Nathan: Proc. U. S. National Museum, 1905, xxviii.

PROPHYLAXIS AND TREATMENT

Prophylaxis consists in keeping away from infested places, and, if exposed, a bath should be taken as soon as possible to remove or drown the mites.

Practically all the books and articles on this subject recommend sulphur ointment, alkaline washes, etc., which certainly give little relief, and do not mention the extraction with a needle and treatment with tincture of iodin, which I have found very effective. If diagnosis is made during the first twelve or twenty-four hours, all the jiggers can be easily removed with a needle. This requires good eyesight and some skill and practice. The jiggers as removed should be placed in a bottle containing alcohol, as some of the jiggers are very active after removal with a needle, and will again bore into the skin if they have an opportunity to do so. After twelve hours, removal is more difficult, because of urticarial swelling, although often many may be found and removed. A peculiar feature of these cases is that the pruritus is so annoying that all patients enjoy the search for the mite, even though considerable bleeding results from the use of the needle. After removal of the mites, relief is pronounced, and the lesions quickly disappear. After each jigger is removed, the spot should be touched with tincture of iodin. This is also the best remedy for the lesions in which the jigger cannot be found. In these cases, painting tincture of iodin on each day gives considerable relief, and within a week the jiggers die and the pruritus ceases.

SUMMARY

1. Trombidiosis or trombidiiasis cutis, the condition of the skin due to the attacks of the red jigger, occurs commonly in Minnesota and probably in nearly all the states of the Union.
2. Trombidiosis occurs only in July, August and the early part of September.
3. Removal of the jiggers by means of a needle and the application of tincture of iodin is the most effective method of treatment.

Knowledge, the Enemy of Quackery.—"No laws will ever be able to prevent quackery, while people believe that the quack is as honest a man, and as well qualified, as the physician. . . . The most effectual way to destroy quackery in any art or science, is to diffuse the knowledge of it among mankind."—William Buchan, M.D., in *Domestic Medicine*, 1783.

THE DETERMINATION OF PULSUS ALTERNANS BY THE SPHYGMOMANOMETER

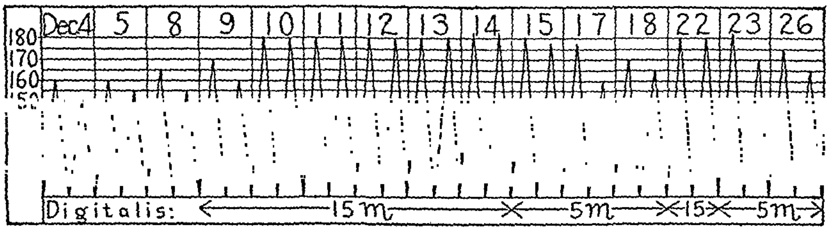
CAROLINE McGILL, M.D.
BUTTE, MONT.

The grave significance of pulsus alternans has been abundantly confirmed. Any simple method for the detection of the condition certainly deserves emphasis. Herrick[1] calls attention to the value of the sphygmomanometer in diagnosing alternating pulse. He says:

> When the systolic pressure is being tested in a patient in whom an alternating pulse is present, a manometer pressure may be reached that cuts off every other beat—the weaker beat—thus halving the rate of the pulse at the wrist.

I have used the same method for some time and have found it reliable and most helpful. The following case illustrates the condition and confirms Herrick's findings. In this case the effect of digitalis therapy on pulsus alternans is well shown merely by following the blood pressure. The blood pressure was taken by the auscultatory method.

Mr. X., aged 53, entered Murray Hospital, Dec. 4, 1914, complaining of marked dyspnea and a severe cough. The family history was negative. The patient had always been exceptionally strong and had lived an active outdoor life. He gave a history of hard chancre on the finger twelve years previously, followed by some skin manifestations. He had thorough mercurial treatment at the time, and three years ago salvarsan, with repeated courses of mercury since. Four years ago the patient received a severe injury to the thorax and since then has been slightly dyspneic. Otherwise, the personal history is negative. The patient was seen at this hospital in 1911; then, the Wassermann was negative. The patient showed rather marked arteriosclerosis and mild chronic nephritis. The blood pressure at that time was 190 mm. Hg. The urine had a specific gravity of 1.010, a trace of albumin, and an occasional hyaline cast. The heart was slightly enlarged.



First four days, one half of beats heard at from 160 to 170 mm. Hg; all the beats heard at 150 to 160 mm. Hg; definite alternation on 15 m minims tincture of digitalis every four hours, the blood pressure rose to 180 mm. Hg and alternation disappeared.

On his present admission to the hospital the patient gave a history of a heavy, severe cold several weeks before, followed by marked dyspnea, and a persistent cough with asthmatic attacks at night. On examination, the patient showed marked myocardial weakness. The heart, both to percussion and Roentgen examination, was very large; the right heart was markedly dilated. The pulse was of fair volume, rather high tension, regular rhythm, rate one hundred per minute. No alternation could be detected by the touch. The patient was markedly orthopneic. There were a few râles at the bases of the lungs. There was slight edema of the ankles and of the eyelids. The Wassermann and luetin tests were negative. The urine was 600 c.c. for the twenty-four hours, specific gravity 1.022, and showed a trace of albumin and an occasional hyaline cast; occasionally there was occult blood. The systolic blood pressure was 160 mm. This, because of the high pressure recorded in 1911, was considered cause for alarm. While the systolic blood pressure was being taken, it was observed that, between 150 and 160 mm., only one half of the beats could be heard; there was typical alternating pulse. The heart showed tick-tack rhythm. The chart shows the condition well and the variation in the pulse when digitalis was administered.

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[1] Herrick, J. B.: Pulsus Alternans Detected by the Sphygmomanometer, The Journal A. M. A., Feb. 27, 1915, p. 739.

December 9, the highest systolic pressure was 170 mm. One half of the beats came through at this height; all of the beats came through at 160 mm.; all sounds disappeared at 130 mm.; there was definite tick-tack rhythm. On that day the patient was given tincture of digitalis, 15 minims every four hours. Twenty-four hours later the blood pressure went to 180 mm., and all beats went through at this point; the alternation had entirely disappeared; all sounds were gone at 140 mm.; the tick-tack rhythm had disappeared; the second sound was quite sharply accentuated.

December 11, 12 and 13 the blood pressure remained at 180 mm., with no alternating quality present. December 14, the dose of digitalis was reduced to 5 minims every four hours. December 15, there was slight alternating and two days later the condition was marked. The highest systolic pressure was 178 mm., and all beats came through at 160 mm. December 18, the patient was again put on 15 minims of the digitalis. The blood pressure promptly rose and showed no alternation. Two days later the dosage was again reduced to 5 minims, and pulsus alternans promptly returned.

The patient left the hospital, December 26, much improved, but still dyspneic on slight exertion. He soon began moderate work. His doctor reports that the decompensation rapidly returned. By March 1, 1915, there was marked edema of the extremities, with extreme ascites. The patient died March 28, 1915.

CONGENITAL ABSENCE OF PATELLAE

AND OTHER PATELLAR ANOMALIES IN THREE MEMBERS OF SAME FAMILY

GEORGE RUBIN, M.D.
CHICAGO

Although a number of observers have reported cases of congenital absence of patellae, yet out of six standard textbooks of anatomy consulted, only one (Piersol's) calls attention to this anomaly. It says:

> Congenital absence of the patella on one or both sides has been noted in a number of instances, and has in some cases been observed in several members of the same family. The functional disability was slight or altogether unnoticeable.

These observations agree perfectly with the findings in cases here presented.

Another anomaly which exists in two of the three cases is an incomplete development of the thumb nails. The two conditions, namely, absence of patellae and absence of thumb nails, are strangely correlated.

Little[1] collected eighteen cases in a family of four generations in which there were no patellae and no thumb nails. He does not state whether the two conditions coexisted in all the cases or whether some had one and some the other, or how many had both anomalies. It is, perhaps, reasonable to suppose that those conditions existed singly in certain individuals. Heredity is certainly a strong factor in these cases. The three cases in this report show plainly the influence of heredity.

Case 1.—Mrs. W., aged 33, born in France, had unimportant family history except that her mother had no thumb nails. The patient had had rickets in infancy; otherwise the personal history was uneventful until about ten years ago, when a heart lesion was discovered. The lesion is still present and consists of a mitral regurgitation. Except for the murmur, the patient shows no other symptoms. The thumb nails are practically absent. Some horny tissue is present right near the matrix. The right patella is about half the normal size. The left patella is no larger and is displaced, but the latter condition was due to an accident.

Case 2.—Robert W., aged 10, son of Mrs. W., Case 1, also born in France, had rickets, but no other conditions that would have any bearing on this case. While looking over the boy for an eruption which was diagnosed measles, my attention was drawn to the peculiarly shaped knee. The anterior aspect was flat and looked very broad in proportion. On close examination no patellae could be felt. This was later confirmed by roentgenoscopy. The nails of the thumbs were normal.

Case 3.—Henriette W., aged 4 years, born in Chicago, daughter of Mrs. W., Case 1, and sister of Robert W., Case 2, was a marantic baby and has still symptoms of pronounced rickets. There were no other conditions relevant to the case. The knees were examined on account of the findings in her brother and with the same result, that no patellae could be found. It was also verified by roentgenoscopy. The thumb nails are partly developed.

The patella is known as the largest sesamoid bone in the body. The anterior surface is covered by the fibers of the quadriceps extensor tendon, which serves as its periosteum. The development begins in the third fetal month as a cartilaginous deposit. Ossification begins between the second and fifth year. The bone is not fully formed till after puberty or even later. The function of the patella, according to Lickley,[2] is as follows:

> The patella forms a more suitable pulley for movements around the condyle than the tendon itself. A minor advantage is of keeping the upper end of the patellar ligament in a plane well in front of the axis of flexion and extension. There is also a defensive function. The most important function is to supply the quadriceps extensor muscles with a lever on which to act.

As far as can be ascertained by physical examination and observation by physician and individual, no inconvenience is suffered on account of absence of the patellae. Being mindful of the late and possibly delayed ossification, Dr. Van Horn, who has done the excellent Roentgen-ray work in these cases, used especially soft tubes so as to outline any cartilaginous deposits if there were any, and at the same time to see the course of the tendon. The latter could be easily traced.

It seems difficult to explain these anomalies first singly, that is, the absence of patellae or thumb nails, and second, the relationship of the two anomalies.

In the three cases here presented there seems to be present one common condition, and that is rickets. Whether or not that can be assigned as the cause would be difficult to say. Perhaps an intra-uterine rickets with or without postnatal rickets is the cause of these peculiar phenomena.

25 East Washington Street.

To Facilitate Expulsion of the Placenta.—I have often experienced the ease with which the placenta presents itself at the vaginal orifice on requesting the patient to flex the knees and raise the hips slightly from the bed—of course the fundus is firmly grasped before and during the procedure.—J. T. Leland, M. D., Herman, Minn.

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[1] Little, quoted by Thorndike: Tr. Am. Orthop. Assn., Philadelphia, 1898.

[2] Lickley, J. Dunlop: Jour. Anat. and Physiol., 1904, xxxviii.

Special Article

PRACTICAL PHARMACOLOGY [*]

(Continued from page 1989)

XXIV

EVACUANTS—*(Continued)*

4. EVACUANTS ACTING ON THE RECTUM

Irritation of the rectum reflexly induces peristalsis in the colon and leads to evacuation of the feces. This rectal irritation may be induced in various ways, the simplest method being a form of local irritation by means of a suppository of soap or glycerin, the injection of a small amount of glycerin or distention by the injection of cold water, or warm water to which soap, glycerin, or other mild irritant, has been added.

If constipation is the result of sluggishness of the movements of the colon, the moderate distention of the rectum by cold water alone will usually suffice to cause a normal evacuation. When the feces have become hard and dry through absorption of an undue amount of their fluid, the normal peristaltic movements are insufficient to drive the intestinal contents along, especially if these have become aggregated into large masses, and the addition of soap to the warm water which is injected slowly, and in sufficient amount so that it penetrates into the colon, aids in softening the masses so that they become at once more plastic and more slippery, and then the peristalsis which is induced by distention of the rectum will suffice to evacuate them.

It is probable that a tube cannot be passed through the rectum into the colon, but if the fluid be injected slowly and with very slight pressure—not more than that exerted by holding the reservoir a foot above the recumbent patient—it will pass gradually into the colon, and may even find its way into the ileum.

Daily stools do not invariably prevent the accumulation of such dry, hard masses of fecal matter, for the colon is so voluminous that soft feces may be forced past such masses which gradually increase in size until they finally obstruct the entrance into the rectum, and cannot be evacuated until they are softened or otherwise broken up.

A warm 5 per cent. solution of sodium sulphate is preferable to water alone for such an enema, because the salt delays the absorption of the water, and permits it to act on the fecal masses for a longer time than it would otherwise.

Glycerin is irritant through its capacity for withdrawing water from the tissues. When introduced into the rectum it sets up peristalsis almost at once by reflex action on the colon. It may be injected in pure form, or added to water or used in the form of a suppository.

Soap may be added to warm water to increase its irritant action on the rectum, or to soften fecal masses as just mentioned, or it may be used in the form of a cone, cut from a piece of castile soap and inserted about 2 inches.

Molasses, oil of turpentine and various other irritants are used as additions to warm water enemas, but they do not require detailed discussion.

DOSAGE

Glycerin as such is injected into the rectum in doses of from 4 to 15 c.c. (1 to 4 fluidrams) or used in the form of a glycerin suppository. When used in the form of an enema it is usually added in quantities of from 15 to 30 c.c. (4 to 8 fluidrams) to from 500 to 1,000 c.c. (1 pint to a quart) of warm, but not hot, water, to be injected slowly at one time.

Soap enemas are made by dissolving not exceeding 5 per cent. by weight of either hard or soft soap in from 500 to 1,000 c.c. (1 pint to 1 quart) of lukewarm water. Cold water, while often efficient, is not so uniformly satisfactory as water at, or slightly above, the body temperature when fecal masses are to be softened.[*]

5. MISCELLANEOUS MEASURES

It has been stated by competent observers that many cases of intestinal stasis or chronic constipation are due to an overdigestion of the food as compared with normal conditions, and that the absence of bulk and necessary moisture retard or otherwise prevent peristalsis.

An effort has been made to overcome these, largely mechanical, factors by the administration of substances which are not in any way affected in the stomach or intestines but which will increase the bulk of the feces, prevent undue absorption of moisture and thus facilitate elimination. It has long been recognized that certain foods, such as fruits and whole wheat bread, containing a comparatively large percentage of indigestible material, will assist materially in establishing regular habits.

Much the same effect can be obtained by the administration of agar-agar and of liquid petrolatum or liquid paraffin.[1] The former has long been used in bacteriologic work as a solidifying material for culture mediums. It is a gelatin-like substance extracted in the East Indies from various seaweeds and has the property of absorbing and retaining water. It prevents the dehydration of feces in the large intestine by holding water tenaciously and thereby serves to increase the bulk of the feces.

Liquid petrolatum or liquid paraffin has long been used to accomplish much the same purpose, though originally it appears to have been given largely with the idea of lubricating the feces. When administered before meals it evidently enters the intestine and is there mixed with the food material, thereby increasing the bulk of the intestinal material, protecting it to some extent from digestion and preventing the absorption of the contained water.

DOSAGE

Agar-agar is given in doses of from 5 to 15 gm. (75 to 240 grains) of the coarsely comminuted substance and may be taken either in water or mixed with food.

Liquid petrolatum should be a colorless and tasteless product, and may be prescribed as "Petrolatum Liquidum Leve or Grave," in quantities of from 15 to 30 c.c. (4 to 8 fluidrams) half an hour or an hour before meals, or in larger doses, from 30 to 60 c.c. (1 to 2 fluidounces) on retiring. Being tasteless and odorless, it can be drunk from a spoon or wineglass, though if preferred, a small amount of oil of peppermint may be added to give a distinctive flavor.

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[*] This is the twenty-fourth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

[*] Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will appear when this series is published in book form.

[1] For a recent study of the clinical use of heavy mineral oil see Bastedo, W. A.: Clinical Experiences with Liquid Paraffin (Liquid Petrolatum), Report to the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry, THE JOURNAL A. M. A., March 6, 1915, p. 808.

CHOLAGOGUES

Cholagogues are agents which stimulate the liver cells, causing an increased secretion of bile. The greater part of the bile which is secreted normally disappears during its passage along the intestine, but various drugs which increase intestinal peristalsis, or which interfere with the decomposition of the bile by bacteria, cause it to appear in the feces in increased amounts, and such drugs were formerly termed cholagogues, though most of them have no action on the liver cells. Later investigations have shown that very few drugs except the salicylates and bile itself have any true cholagogue action.

Bile is partly an excretion, containing such waste products as cholesterin and lecithin, but cholagogues are employed only with reference to the influence of bile in promoting the splitting and absorption of fats in the intestine, or as an adjuvant to the action of certain evacuants, such as aloes. Bile also indirectly promotes the digestion of proteins in the intestine, since unabsorbed fats envelop proteins and interfere with the action of digestive enzymes on them.

The secretion of bile varies with the amount of blood which circulates through the liver, and it seems probable that a hormone present in the blood stimulates the liver cells to secrete bile. The introduction of hydrochloric acid into the duodenum causes an increased secretion, and it seems probable that this is due to the secretion which is formed from prosecretin by the acid.

Ox bile, or salts of the bile acids and salicylic acid are the only drugs which are commonly used as chologogues, and their action is feeble at best.

The appearance of fat in undue amounts in the feces suggests the use of cholagogues, but there are seldom any clear indications for their use in adults, except perhaps as an addition to evacuants.

Cholagogues are contraindicated in the presence of jaundice due to obstruction of the bile ducts.

DOSAGE

The dose of the purified ox bile is 0.5 gm. (7½ grains), but much larger amounts may be used. It is best administered in the form of pills, or preferably in gelatin capsules which have been treated with formaldehyd to render them less soluble in the stomach.*

EMETICS

The first stage of the actions of emetics begins with nausea, salivation, increased bronchial secretion, usually sweating, and often a flow of tears. Great muscular weakness attends this stage and the act of vomiting is usually preceded by increased respiration which then becomes irregular and ceases during the vomiting. Usually the saliva drools from the mouth of animals just before emesis occurs.

Vomiting is accomplished by the coordination of a series of actions which include the following: The pylorus is closed, preventing the passage of the contents of the stomach into the intestine; there are antiperistaltic movements of the antrum of the stomach, which move the contents into the fundus; the cardia relaxes while the abdominal muscles contract, compressing the stomach and forcing its contents out through the esophagus and the mouth, and sometimes through the nose. The muscles of respiration are fixed, preventing the aspiration of the vomitus.

The reflexes which control the several active movements and inhibitions of the vomiting act are coordinated through a center in the medulla which lies near that of respiration and which is evidently associated with it physiologically. This center is spoken of as the vomiting center, and stimulation of it either directly or reflexly leads to nausea and vomiting. Occasionally the process is arrested before vomiting actually occurs, and the stage of nausea and general muscular depression may then persist for some time.

There are two types of emetics: those which irritate the sensory nerve ends in the gastric mucous membrane in a specific manner, whereby vomiting is reflexly induced, and those which act directly on the center without coming in contact with the gastric mucous membrane.

Nearly all drugs which violently irritate the mucous membrane of the stomach cause vomiting unless they also induce narcosis or collapse before the emetic action can be developed, and this coordination of the several actions requires some little time, usually from two to ten minutes. Sensory irritation in the stomach does not always cause emesis, and certain drugs induce nausea and vomiting without causing painful stimuli.

The fact that irritants so commonly cause vomiting has given rise to an unfortunate misconception, and it is frequently argued that a given substance must irritate the stomach directly and induce nausea and vomiting if it is irritant when applied to the mucous membranes of other areas, such as that of the nose or conjunctiva. It is true that a substance may be intensely irritant to the nasal mucous membrane and yet be virtually without action on the stomach. This is precisely what one should expect, for one of the functions of the nasal mucous membrane is to protect the air passages against the entrance of foreign bodies, and it accomplishes this by causing sneezing due to irritation of the nasal mucous membrane, hence the latter requires a high degree of excitability, but the stomach is frequently subjected to the action of a great variety of irritant vegetable substances and it acquires a high degree of tolerance to many of them because its function is to retain ingested material.

Many drugs—perhaps a much larger number than is generally supposed—act directly on the vomiting center. When emesis is the object sought, it may be of less importance to determine the seat of the action than it is in those cases in which it is a side action. We do not know the mechanism of the emetic action of ipecac in full,[2] but this does not interfere with our employment of it, whereas it is of the first importance to know whether this effect can be avoided by proper methods of administration when it constitutes a side action of a drug which is used for its systemic effects. If such an action is central it can be avoided only by proper regulation of the dosage, and not merely by the choice of the channel by which it is administered.

It is understood that these remarks apply to the usual conditions observed in the more common diseases, and not to those in which the stomach is extraordinarily irritable, for even the sight of food or the odor of a drug may cause emesis in such exceptional conditions, and a drug which would have no effect under ordinary circumstances might then cause nausea and vomiting. A few drugs which irritate the stomach directly are also capable of stimulating the vomiting center when they enter the circulation in sufficient concentration, this being probably true of sodium salicylate, even when it is administered in dilute solution.

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* Owing to lack of space the materia medica of this group is omitted from The Journal. It will appear when this series is published in book form.

[2] Recent experiments indicate that the action is at least partly central.

Nausea of various grades and emesis are encountered so frequently as side actions that it may be worth while to point out the cause in some of the cases in which it is commonly encountered: Nearly all readily soluble salts either dry or in concentrated solution (from 5 to 20 per cent.), cause irritation of the stomach; this can be avoided by using them in dilute solutions.

Hydrated chloral is also very irritant to the stomach, and should be administered in dilute solution, and preferably in a bland fluid.

The digitalis bodies without exception, drugs of the picrotoxin group, including wild parsnips, which are frequently eaten by mistake for parsnips, tobacco or nicotin, lobelia, morphin, atropin (occasionally pilocarpin), and related substances stimulate the vomiting center directly when overdoses are administered by any channel.

Emetics were used formerly more frequently than they are at present, the stomach tube being employed now in the majority of cases in which it is desired to empty the stomach after poisons have been swallowed, and even after their subcutaneous injection if they are excreted into the stomach, as morphin is. The stomach tube may be used for the removal of fermenting masses of food, but tenacious curds, undigested meat, and vegetables which have not been masticated properly, may obstruct the tube, in which case emetics are preferable.

The removal of poisons from the stomach requires the use of rapidly acting emetics when the stomach tube is not available. Emetics are also used to remove foreign bodies from the esophagus and from the upper respiratory passages, and to relieve spasm of the larynx and bronchi in asthma, in nondiphtheritic croup and analogous conditions.

It is frequently stated that emesis may facilitate the passages of gallstones through the bile duct, and it is possible that their action is explainable at least in part by their causing muscular relaxation of the duct.

The nauseant stage of the action of the emetics will be discussed when the expectorants are considered.

It is often stated that emetics are contraindicated after corrosive substances have been swallowed, because of the danger of rupturing the walls of the stomach when they have been weakened by the corrosives, but this danger must be remote in the great majority of cases which the general practitioner is called on to treat. The mechanism of emesis which has been described does not depend on the contraction of the musculature of the stomach alone for expelling the contents, and the contractions of the abdominal muscles serve to compress the walls of the stomach against the contents, but this does not subject them to any severe tension which alone can cause their rupture. Certainly the removal or neutralization of caustics demands action, even though it may involve some risk.

EMETICS ACTING DIRECTLY ON THE STOMACH

IPECAC

Ipecac contains two alkaloids which contribute to its actions, one of which is of relatively little importance. These are cephaëlin, to which the emetic action is due for the greater part; emetin, which was so named when it was supposed to be the only active constituent present; and psychotrin, which is unimportant.

The different alkaloids of ipecac have not been studied in great detail, and we are not able to determine in every case to which we may attribute a given action of the crude drug.

Emetin is known to be less actively emetic than cephaëlin, but commercial specimens of emetin certainly cause emesis whether they are administered intravenously or by the mouth. Emetin is said to appear in the stomach after its subcutaneous injection, and since it acts slowly after the latter method of administration, we may infer that its action is partly local, but it also stimulates the center directly after its absorption. The alkaloid is also irritant to the skin and to the mucous membranes of the nose and other regions, and when large doses of ipecac are given by the mouth, a portion passes into the intestine and may cause diarrhea.

Emetin possesses a specific action on the ameba of dysentery, and it alone appears to be responsible for the therapeutic effects of ipecac in that disease. It is also actively destructive to the endameba that is said to cause pyorrhea dentalis and pyorrhea alveolaris.

It is said to cause irritation of the intestinal mucous membrane when present in sufficient amount, causing inflammation with paralysis of the capillaries, much as colchicin and arsenic do, the symptoms resembling those caused by arsenic.

Ipecac causes prolonged nausea which is useful when it is employed as an expectorant, but a disadvantage when it is used as an emetic. Moderate doses do not cause such severe depression as antimony.

ZINC SULPHATE AND COPPER SULPHATE

These two salts act on the mucous membrane of the stomach and cause vomiting after a fleeting nauseant stage, and as nearly the whole of the dissolved salt is removed when vomiting occurs, the side actions are brief and of little importance in most cases.

When emesis is delayed or when it fails to occur, after the administration of copper sulphate, the latter passes into the intestine and causes diarrhea, but it is absorbed very slowly and almost never gives rise to symptoms of poisoning.

Copper sulphate affords one of the best means at our command of combating phosphorus poisoning when that poison is still present in the stomach. Solutions of copper sulphate deposit an impervious coating of copper on the surface of the phosphorus almost instantly when brought in contact with it, and the rapid emetic action of the antidote serves to remove the phosphorus. The deposition of copper occurs with extreme rapidity even when dilute solutions are used, hence large amounts of dilute solutions are preferable to small amounts of concentrated solutions.

Zinc sulphate causes emesis in the same way that copper sulphate does, and it is equally harmless.

Copper sulphate is used for giving a green color to preserved vegetables, and while there is no proof that enough copper can be taken in this way to cause injury the practice is properly prohibited in the absence of proof that even such small amounts are altogether harmless. It is said that fruits dried in zinc-lined trays contain notable amounts of the metal, but there is no evidence that they are harmful on that account.

The nauseant stage induced by copper and zinc sulphate is too fleeting to permit of their use as expectorants.

Antimony and Potassium Tartrate

Antimony and potassium tartrate, or tartar emetic, acts locally on the gastric mucous membrane to induce nausea and vomiting, but tartar emetic is more actively poisonous when it enters the circulation than are the sulphates of copper and zinc, its systemic effects resembling those of arsenic, but fortunately, the poisonous actions of antimony are seldom observed after its therapeutic use as it is seldom used except in small doses as a nauseant.

When large doses are taken and vomiting fails to remove the greater part of such a dose, tartar emetic passes into the intestine and causes severe diarrhea with corrosion of the mucous membranes and absorption into the circulation. In addition to the usual effects which accompany nausea and vomiting, tartar emetic poisoning is attended with copious watery stools, fall of blood pressure, and slow and labored respiration and depression of the central nervous system, ending in collapse and death in rare instances. Some depression of the central nervous system is present even with emetic doses, hence it is not well suited for use in debilitated patients. As little as 0.15 gm. (2 grains) of tartar emetic has caused death when vomiting failed to occur after its administration. When vomiting is delayed for an hour or more after the administration of the usual emetic dose, tannin, lime-water or magnesia should be given to precipitate the antimony and the stomach should be washed, after which active purgation should be induced.

Tartar emetic ointment is irritant, resulting in pustulation, after its application to the skin, the exact mechanism being unknown, though it has been suggested that the double salt is decomposed with the liberation of acid, to which the pustulation is due. Antimony destroys trypanosomes even in very dilute solutions. Nauseant doses of antimony are free from danger.

Other Locally Acting Emetics

Warm water, slight irritation of the pharynx, as by tickling with a feather, alum, common salt, alkalies (including ammonium carbonate) mustard and numerous other means are employed in domestic practice to induce vomiting through their reflex actions, but these hardly require detailed discussion here.

EMETICS ACTING DIRECTLY ON THE VOMITING CENTER

Apomorphin

Apomorphin is the only drug commonly used as an emetic that induces vomiting by its direct action on the medullary center.

When small amounts of apomorphin are injected subcutaneously, nausea and vomiting are induced within a few minutes, these effects being due to the direct action on the vomiting center in the medulla. Less is required by intramuscular injection, and much less intravenously, to induce the action on the center, but the effects of intravenous administration to dogs are somewhat peculiar in that a definite amount is required—neither more nor less in many cases. If less than the emetic dose is given no perceptible effects are observed; if too much is given depression occurs without emesis, and the animal remains refractory for some time. All doses above the minimum effective administered in any other way cause emesis. Much larger doses are required by the mouth than by other channels, and a longer interval ensues before emesis is induced.

In experiments on dogs effective intravenous doses cause emesis within five minutes usually, the emesis is not repeated, and after ten minutes the repetition of the same dose will again produce the same effect as the first. This may be repeated many times with little difference in the effects of the subsequent doses.

Small doses of apomorphin depress the higher centers somewhat as morphin does in animals, depression following very promptly any excitation; but in man the depression of the higher parts of the brain is much less conspicuous, the muscular weakness and other symptoms noted being for the most part secondary to the emetic action. Cushny states that apomorphin has not caused death in man, though it does occasionally cause collapse.

When small doses are administered the nausea is brief and vomiting occurs but once or twice, but if large doses are used vomiting may be repeated frequently for some time, or there may be prolonged nausea and great muscular weakness without actual emesis, with a slight degree of somnolence.

THERAPEUTIC USES

The therapeutic uses of the emetics have been suggested already in the discussion of this subject, but it remains to point out special indications for the choice of the emetic.

When it is merely desired to empty the stomach of indigestible or fermenting food, the simplest emetic is to be preferred, and warm water, mechanical irritation of the pharynx, warm solution of salt, warm mustard water, or other domestic measures suffice. When prompt results are imperative, as in poisoning, the use of the stomach tube is indicated, but if this is not available a promptly acting and dependable emetic such as apomorphin is required, and the emesis may be made more certain by resorting to accessory means, such as irritation of the pharynx with the finger or a feather, or the use of one of the domestic emetics, such as water with warm salt or mustard, should the apomorphin prove ineffective in a few minutes.

When simple emesis is desired for the purpose of removing indigestible food, copper sulphate or zinc sulphate may be used, and accessory measures may be employed at the same time.

Syrup of ipecac is still used to induce vomiting in children in nondiphtheritic croup, when it is desired to secure relaxation of the laryngeal muscles.

The use of emetics to facilitate the passage of gallstones through the duct would seem to depend, partly at least, on the muscular relaxation which accompanies nausea, and vomiting, and as this muscular relaxation is greater with apomorphin than with the other emetics in general use, probably because of a specific muscular action of the drug, it probably deserves the preference for this purpose, just as it is utilized in overcoming the motor excitement in acute alcoholism, which, being abolished, is followed by quiet or sleep. Apomorphin is also used as a hypnotic in small doses.

Ipecac has been used for many years in the treatment of amebic dysentery, its beneficial actions being variously attributed to its tannin and to its alkaloids. There is no reason to doubt that ipecac owes its actions in this condition to its emetin, and since the doses of this alkaloid which are effective in amebic dysentery are not necessarily emetic, this alkaloid has come to replace ipecac largely for this purpose. It may be given orally, intramuscularly or subcutaneously. Halsey recommends the use of pills of ipecac coated with salol, in order that they may pass the stomach undissolved and act on the amebas in the intestine. He calls attention to the fact that the large doses which are required may cause dysenteric symptoms which may be mistaken for the continuance of the disease. Such large doses are frequently combined with opium to prevent the diarrhea, and to permit the more prolonged action of the alkaloid emetin on the amebas.

The use of ipecac, and especially of emetin hydrochlorid, has been recommended in the treatment of pyorrhea dentalis and pyorrhea alveolaris, which has recently been shown to be extremely common among adults. While emetin is capable of destroying the endameba concerned, reinfection is almost certain to occur, hence the drug can hardly be depended on for a permanent cure.

DOSAGE

The average emetic dose of ipecac is stated to be about 1 gm. (15 grains); the expectorant dose is from one-tenth to one-twentieth the emetic. It is used in minute doses—about 0.005 gm. (1/12 grain) as a gastric sedative.

The initial dose for amebic dysentery is 2 gm. (30 grains) and as this amount will usually cause emesis unless steps are taken to prevent it, it should be preceded by a dose of morphin or opium, or it may be directed to be enclosed in gelatin capsules previously treated with formaldehyd or made into pills coated thinly with salol. Unless care is taken in coating the pills an overdose of salol will be administered. It is obviously better to use emetin for amebic dysentery; it should be given in doses of 0.03 gm. (½ grain).

Copper sulphate and zinc sulphate are given in doses of 1 gm. (15 grains) as emetics. They are not used internally for other purposes.

The emetic dose of apomorphin is 0.005 gm. (1/12 grain), injected subcutaneously at intervals of ten minutes until effective, but when used to evacuate poison a somewhat larger dose of apomorphin may be given at once, unless severe depression exists, and emergencies may demand the use of a dose of 0.01 gm. (1/6 grain). It is not recommended as an expectorant, but it is sometimes used for that purpose in doses of 0.002 gm. (1/30 grain).

The hypnotic dose is about 0.002 gm. (1/30 grain) and this or somewhat larger doses may be used subcutaneously in the case of vigorous and violent subjects of alcoholism.

It is stated that 0.004 gm. (1/15 grain) has caused the death of a patient enfeebled by bronchitis, but this must be considered an extraordinary case, and remarkably few deaths have been attributed to it. Apomorphin is practically never given by the stomach to induce emesis, because of the large dose required and the delay in the action.

Antimonials are rarely used for producing emesis at present, but are frequently employed as nauseant expectorants. The emetic dose of antimony and potassium tartrate (or tartar emetic) is 0.03 gm. (½ grain) but this use is not recommended; the expectorant dose is 0.001 gm. (1/60 grain) which may be repeated every hour, or so often as may be necessary to maintain a slight degree of nausea and its accompanying increased secretion, provided the dose is not pushed to the point of causing severe depression. It is obvious that robust patients can stand repeated doses better than those who are already debilitated.*

(To be continued)

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

CEPHAELINE.—Cephaelina.—Cephaeline is an alkaloid, $C_{14}H_{20}O_2N$, obtained from ipecacuanha root.

Actions and Uses.—These are identical with those of ipecac. It is relatively more emetic and less nauseant and causes relatively more renal irritation and less cardiac depression. It may be employed as an emetic and expectorant.

Dosage.—From 0.005 to 0.01 Gm. (1/12 to 1/6 grain) in pills or as a powder triturated with sugar of milk.

Cephaeline occurs as snow-white, *fine, interlacing* needles, which readily turn yellow. It is soluble in ether and sodium hydroxide solutions, melts at *from 96 to 102* C., and turns brown when heated to 120 C. With Fröhde's *reagent*, a freshly prepared solution of 0.1 Gm. sodium molybdate in 10 Cc. concentrated *sulphuric acid*, it gives a purple color which hydrochloric acid changes to *Prussian* blue.

Non-Proprietary Preparation:

Syrup Cephaeline, Lilly.—A syrup containing cephaeline hydrochloride equivalent to 0.088 Gm. of cephaeline per *hundred* Cc. (⅖ grain per fluidounce). Cephaeline hydrochloride, $C_{28}H_{40}O_4N_2.2HCl+7H_2O$, used in this preparation, is required to be white, practically neutral, completely soluble in about 1.5 *parts* of water or alcohol and also completely soluble in a saturated solution *of barium* hydroxide. Manufactured by Eli Lilly and Co., Indianapolis, Ind.

OUABAIN, CRYSTALLIZED (See N. N. R., 1915, p. 103).

The following non-proprietary dosage form has been accepted:

Ouabain Ampules, H. W. and Co.—Each ampule contains crystallized ouabain, ¼ mg. Prepared by Hynson, Westcott and Co., Baltimore, Md.

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* Owing to lack of space the materia medica of this group is omitted from The Journal. It will appear when this series is published in book form.

The Growth of Surgery.—Rational surgery was one of the gifts of the Greeks, but in the 800 years between Hippocrates and Oribasius few names have survived specially associated with this branch of medicine. Who among us off hand could recall more than two or three in addition to Hippocrates and Galen? Yet in this period scores of important schools flourished with great *teachers* of surgery, men honored in their generation and the glory of their times.—Osler.

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Recently the specificity of the luetin reaction has been questioned, since other substances injected intradermally may give a local reaction which cannot be distinguished from the luetin reaction. Such a substance is emulsion of ascitic agar. Neisser explains this on the ground that the skin in late stages of syphilis is especially sensitive to trauma. He and others believe that this hypersensitiveness is in itself characteristic of syphilis, and that the value of the luetin test is unaffected by it.

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Ross found that the degree of reaction to the luetin and Wassermann tests run parallel, that is, if the luetin reaction was weakly positive, there was likewise but slight deviation of the complement in the Wassermann test. Similar results have not been reported by others, and there is no good reason known why such similarity should exist, since the Wassermann reaction is not dependent on antibodies, while the luetin test depends on reaction of antibodies with specific proteins.

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[6] Robertson: Morrison Lectures, 1913.

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(104 F.) by means of a steam bath, or their heat production was accelerated by very vigorous exercise. This indicates that rise in temperature alone or increase in heat production alone will not cause an increased protein metabolism. In typhoid patients, the situation is otherwise. In the Bellevue cases, food was given which had an energy content much greater than the amount required by the patients as measured directly when they were in the calorimeter. Although the protein content of the diet, as represented by an intake of 15 grams of nitrogen, was ample to establish nitrogen equilibrium had the diet been given to normal men, it did not accomplish this in typhoid fever. Coleman and DuBois insist that it is difficult to see in this anything except the proof that there is an abnormal destruction of protein in typhoid fever. In some cases the protein destruction continued several days after the temperature had reached a low level. It is impossible to escape the conclusion that the destruction of protein is caused by the toxins of the disease.

Doubt has been expressed at times regarding the ability to absorb the large quantity of fat and protein furnished by the high calory diet in the case of febrile patients. In the cases of seven patients reported in connection with the preceding investigations, the average total fat loss was 4.3 per cent. No differences were observed in the percentage absorption of fat in the early and later stages of the fever or up to the end of the first week of convalescence, when the intake was relatively large. The average nitrogen loss in the feces for all the periods amounted to 1.57 grams, or 11.2 per cent. These facts speak well for the alimentary possibilities of the dietary.

No one can read these noteworthy contributions without an appreciation of the splendid spirit of cooperation which has made them possible.

INTERPRETATIONS UNDER THE HARRISON NARCOTIC LAW

Treasury decision 2213, issued June 7 by the commissioner of internal revenue, establishes a new ruling on Section 6 of the Harrison Narcotic Law, the section exempting certain proprietary preparations from the operations of the law. The section provides that preparations and remedies which do not contain more than 2 grains of opium or more than one-fourth grain of morphin or more than one-eighth grain of heroin or more than one-eighth grain of codein, etc., shall be exempt from the provisions of the act. The decision discusses the question as to whether or not "prescriptions" come within the definition of "preparations" or "remedies" as given in the act. The commissioner says:

> The word "preparation" as generally used and understood means ready-made or prepared medicines, and the word "remedies" means that which cures or is efficacious in a specific disease or diseases under all conditions, while the term "prescription" is the written directions or recipe of a physician for the compounding or preparing of a medicine and directions for its use to meet the existing conditions in the case of a particular patient.

Under this interpretation, the commissioner holds that the exemptions in Section 6 do not apply to prescriptions written by registered physicians unless such a prescription is written for a preparation or remedy prepared in accordance with the U. S. Pharmacopeia, National Formulary or other formula, or for a "remedy or preparation" prepared under private or proprietary formula, carried in stock by a dealer, which may be dispensed without a "prescription." Accordingly, the commissioner directs that every prescription containing a narcotic drug in any quantity, unless it is for a preparation prepared in accordance with the U. S. P. or National Formulary, must have indicated on the prescription the name and address of the patient, the date, the name and address of the physician and his registry number. Such prescriptions cannot be refilled, and must be kept on file by the druggist filling them for a period of two years.

This ruling draws exactly the same line in medicinal preparations that exists between ready-made clothing and clothes made to order. A preparation which is put up in accordance with a distinct formula and which is recognized as a definite preparation is exempt, provided it contains less than the minimum quantity of drugs. A physician's prescription, being written to order for an individual patient for a specific purpose, is not exempt, no matter how small an amount of the prescribed drugs it may contain. The practical effect of this decision is, that under it, physicians must include, in all prescriptions containing any opium or cocain or any of their derivatives, the name and address of the patient, the date, and the name, address and registry number of the physician.

At first glance, this decision will doubtless impress physicians as being a discrimination against them and in favor of proprietary preparations. This is true, but it is because the law, as it passed Congress, discriminated against physicians and in favor of "patent medicine." Section 6 of the Harrison law represents the political influence of the "patent medicine" manufacturer in Congress. It should never have been included in the law. Its insertion weakened the law and was due solely to the inability of the members of Congress to resist the pressure from "patent medicine" interests. This section must be repealed; so long as it stands, the Treasury Department has no choice but to enforce it. To use an exemption clause drafted at the dictation of the "patent medicine" interests to exempt physicians' legitimate prescriptions would be an absurdity. There should be no exemptions of any kind under this law. Every preparation of any kind, containing any amount of opium or cocain or any of their derivatives, should be subject to the operation of the law. Physicians have never asked that their prescriptions should be exempt. The demand for such exemption comes solely from the proprietary and "patent medicine" interests; to satisfy these interests, the special exemption was made.

It has often been said that the best way to repeal unwise laws is to enforce them, rigidly and impartially. Section 6 of the Harrison law should be repealed at the earliest opportunity. Until this is done, it should be enforced. Physicians certainly do not wish to have their prescriptions put in the same category as "patent medicine" fakes and frauds. Let the dope-containing "patent medicine" stand on its own merits, if it has any, and let it be distinctly separated from the prescriptions of reputable physicians. With this understanding of the recent decision, the position of the Treasury Department should receive the approval of all physicians.

Another Treasury Decision (T. D. 2414, June 10, 1915), giving the interpretation of the Internal Revenue Bureau on another portion of the Harrison law, has just been made public. This decision has reference to the limitation on the professional prescription and distribution of narcotics by persons whether registered or not. The decision states that registration is limited to certain named persons, and that persons not legitimately engaged in the exercise of their trade or profession cannot legally register under the terms of the act, and has special reference to the prescription and distribution of narcotics on mail orders.

According to the decision, a party must be a legitimate producer, importer, manufacturer, seller or distributor of the mentioned drugs; likewise, a physician, dentist or veterinary surgeon can register under the act and dispense these drugs "in the course of his professional practice only." Such physician, dentist or veterinary surgeon can prescribe these drugs "when he has been employed to prescribe for the particular patient receiving such drugs" and on whom "he shall personally attend in his professional practice only," and then only "when employed to prescribe for the particular person receiving such drugs."

The decision further states that it has special application to those persons not registered as physicians who prescribe or distribute narcotic drugs or preparations on mail orders received from so-called patients or who, under the laws of the state or municipal regulations, are not permitted to practice medicine. This and the decision first referred to constitute two of the most important and far-reaching regulations in regard to the curbing of the indiscriminate sale and use of "patent" or proprietary medicines containing narcotics or habit-forming drugs. The extent of the so-called mail-order prescription cannot be estimated, but this recent treasury decision will undoubtedly have a tremendous effect on lessening this growing evil.

THE EFFICIENCY OF VENEREAL DISEASE CLINICS

While the value of hospitals is not amenable to mathematical measurement or to monetary evaluation, nevertheless it is possible, and justifiable for those interested, either as donors, medical directors or business superintendents, to ascertain what are the returns from the investment of money, time and scientific service. If, for instance, a clinic is dealing with a class of cases for the most part curable, and if, as must be the case, the objects of the clinic's existence are to cure the patients applying for treatment or at least to render their defects noncommunicable, then it is a wise procedure to ascertain the efficiency of the methods employed as measured by the results accomplished.

Interesting data bearing on the value of venereal disease work in New York clinics were recently presented before the health section of the National Conference of Charities and Correction in Baltimore by the superintendent of the Bureau of Public Health and Hygiene of the New York Association for Improving the Condition of the Poor. It is announced that further results of the "efficiency tests" being carried out by this association will be presented at the San Francisco session of the American Medical Association. This investigation, following work of a similar kind in Boston and Cleveland, brought out striking though not entirely unexpected results. A number of the clinics were studied, and, while in most of them the records were so inadequate as to make any conclusions unreliable, in a few it was possible to ascertain with reasonable accuracy such facts as the percentage of total patients making only one visit, the percentage actually discharged as cured, etc.

It was stated that from 30 to 50 per cent. of the gonorrheal patients came to the clinics only once, a situation which would seem to make inevitable a tremendous waste of time of the physicians in charge, in addition to which there must be considered the futility of a single treatment in this disease, and the fact that many of these patients temporarily relieved, at least in mind, continue to circulate freely in the community, subjecting others to infection. In none of the clinics were more than 10 per cent. of the patients discharged as cured, a condition which physicians have long vaguely realized, but on which, by their personal efforts alone, they are powerless to improve.

As pointed out in the Baltimore paper, several things are needed before an improvement can be assured. The clinic records must be kept so that those in charge may know at least what is happening to the patients; there should be a mechanism, based on a "live" and "dead" record card system, and a method of follow up either by card or visit, which would encourage persistence on the part of the patient with the treatment until cured. An intelligent, forceful, yet sympathetic presentation to the patient of the seriousness of the disease, either by the doctor or by a trained social worker, as carried out at the Boston dispensary, will do much to activate a theoretically effective record and follow up system.

In the public health problems of today, there is none more important or urgent than the control of gonorrhea and syphilis. In no field can society less afford to waste energy and funds. The necessity for extension, under either private or governmental auspices, of the mechanism for the control of these most difficult and menacing public health hazards is insistent. Certainly the best utilization on the basis of a 100 per cent. efficiency if possible, of the existing facilities, is demanded on the grounds of efficiency, economy and health.

THE UNIVERSITY OF MINNESOTA AND THE MAYO FOUNDATION

The announcement was made last February[1] that the Mayo brothers of Rochester, Minn., had established the "Mayo Foundation for Medical Education and Research," had endowed it to the amount of $1,500,000 and, with certain conditions, had offered it to the University of Minnesota. The relationship proposed was for a trial period of six years, after which, if it proved satisfactory, the foundation would be placed under the complete control of the university. The offer was considered favorably by the administrative board of the medical school, and referred to the board of regents for action. A special committee of the board of regents was appointed to make an investigation and to report back to the board. An abstract of their report was published last week,[2] and on June 9, the recommendations of the committee were adopted by the regents.

The announcement of the proposed union between the university and the foundation aroused an unexpected opposition, and caused a more lively discussion perhaps than has ever been given to a proposed improvement in medical education and research. This opposition was of positive benefit, however, since it resulted in a most thorough investigation of the Mayo Clinic, the research foundation and the terms of the application, and wide publicity was given to the whole matter. This open appeal to public opinion has not only dispelled the opposition but has also more clearly indicated the advantages of the application. The final effort of the opposition was to secure legislative enactment prohibiting the University of Minnesota from affiliating with agencies outside of the campus. This bill, which would have seriously restricted the university's field of activities, failed to pass, and the fact has come to be clearly recognized that the sphere of activity of the university is the entire state, and not the narrow bounds of the university campus.

From a small beginning, many years ago, the Mayo Clinic has developed until it is now recognized the world over. Its aim has been to bring to its clientele the utmost resources of medical knowledge and skill. In fulfilling this purpose, the scope of the medical research has steadily been extended, and a large amount of material and equipment useful in diagnosis as well as in research has been accumulated. Clinical records particularly have been kept and so cross-indexed as to be readily available for statistical study. This development was directly in line with the plan of the Mayo brothers, first conceived seventeen years ago, to establish a research foundation. That affiliation should be sought with the University of Minnesota Medical School was natural, since for years the clinic has been working in close harmony with that school and has obtained from it many research workers.

Medical education in Minnesota has been unified to a remarkable extent in recent years, and it has been placed entirely under the control of the state university. The reorganization of the medical school two years ago resulted in the withdrawal from undergraduate medical teaching of about forty medical instructors and also of several hospitals in St. Paul and Minneapolis in which clinics had been regularly held for a number of years. This condition might have resulted in the formation of another medical school had not the university grasped its opportunity to develop graduate medical instruction. This provided the way by which the excess of teachers and the splendid material in the hospitals could still be used. At the present time, it is stated, graduate courses are being offered in all laboratory and clinical departments except those of genito-urinary diseases and dermatology, and this work has been arranged in systematic courses leading to the graduate degree of Doctor of Science. Provision has been made also for a number of teaching fellowships in advanced medical research. The acceptance of the proposal to unite the work of the Mayo Foundation with that of the university is directly in line with the policy to retain the control of all medical education in Minnesota, both undergraduate and graduate, in the hands of the state university.

The facilities for research and graduate instruction of the university and of the Mayo Foundation in a large measure supplement each other. Such instruction has been best established at the university in connection with the laboratory branches, whereas at Rochester more work has naturally been done in connection with the clinical departments. This being the case, the rotation of graduate students between the university and Rochester will result in a more thorough and all-round training in both the laboratory and clinical aspects of any chosen specialty. Under the plan proposed, the research work at the two places will be unified and harmonized under the control of the University of Minnesota.

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[1] Mayos Give Million for Research, Medical News, The Journal A. M. A., Feb. 20, 1915, p. 672.

[2] The Journal A. M. A., June 12, 1915, p. 2009.

The taking over by the University of Minnesota of this excellent research organization now known as the Mayo Foundation will aid greatly in the development in that state of the highest type of graduate medical instruction and research, such as will compare favorably with, or even surpass, the opportunities to be found elsewhere in this country, or abroad.

THE ACTIVE CONSTITUENT OF THE THYROID

It is nineteen years since Baumann announced his discovery that iodin is a normal constituent of the thyroid gland, and began the series of studies which inaugurated a new era of work on the physiology and chemistry of this organ. Since that time many attempts have been made to determine in what sort of compound the iodin is held in the thyroid, and the relation this iodin compound has to the physiologic and pathologic functions of the gland. While the hypothesis was advanced that the iodin is taken up by the thyroid simply as an adventitious and undesirable chemical impurity, and held where it can do no harm, much as arsenic and other heavy metals are held in the liver, this was not generally accepted; there was too much evidence that the activity of thyroid preparations varies according to the amount of iodin they contain, and some of the crude iodin-containing preparations made from the gland were shown to exhibit many of the physiologic effects that are characteristic of the thyroid itself. The nature of the essential iodin compound, however, was not disclosed easily, and much unsuccessful work has been done in the attempt to repeat with the thyroid the brilliant chemical studies of the active principle of the suprarenal.

Because the aromatic radicals are capable of taking up iodin atoms, the aromatic compounds of the protein molecules (tyrosin and phenylalanin) were strongly suspected of being the nucleus to which the thyroid iodin is bound; but attempts to prove this by analysis, or to construct artificially aromatic iodin compounds with the physiologic effects of the thyroid, were all fruitless. On another page E. C. Kendall,[1] working in the Mayo Clinic, reports the isolation from thyroid glands of a crystalline iodin compound. This substance is believed to be an aromatic compound of iodin, but the aromatic nucleus is not one of the amino-acids existing in proteins, being instead the indol ring. It has exhibited remarkable physiologic activity, and the effects it produces supports the view that it is the chief active constituent of the thyroid gland, so long sought in vain. Of particular interest is the fact that much of the evidence of its activity, as shown by animal experimentation, has been supplemented by observation of its effects on patients with diseases of the thyroid, an important addition to the usual tests on laboratory animals.

While it must be recognized that this work is quite new, and has not yet been corroborated by other investigators, nevertheless the evidence presented seems entirely satisfactory and convincing. Kendall has not yet determined the exact spatial arrangement of the iodin atoms in the indol ring. When this is done, there will be every possibility that the active principle of the thyroid can be prepared synthetically and made available at relatively small cost. In the meantime, the preparation of the active principle in pure form will, if it can be carried out on a commercial scale, make possible much more accurate dosage and better pharmacologic study than can be expected from the crude thyroid tissue with its varying composition and adventitious substances.

Current Comment

PSYCHIC HYPERGLYCEMIA

Much has been written recently about emotional glycosuria and, as might be expected in view of the prominence of blood analysis, about hyperglycemia of nervous origin. Numerous investigators who have employed the highly refined modern technic for the estimation of sugar in the blood have pointed out that various acts incident to experiments on animals are in themselves sufficient to lead to a rise in the sugar content of the circulating medium. Even the manipulations attending the fixation of the subject and the withdrawal of the blood sample have been shown to lead in some cases to an appreciable change in the sugar level of the blood, to which our German colleagues have given the names "Fesselungshyperglykämie" and "Fesselungsglykosurie." The excitation stage preliminary to narcosis with ether, mild operative procedures in the absence of local anesthesia, and similar supposedly insignificant factors, in the belief of a number of investigators, have been demonstrated to leave such evidence of their effect. Loewy and Rosenberg,[1] for example, invariably have found the blood sugar content noticeably higher in animals in which the withdrawal of blood involved some pain. The differences may amount to 100 per cent. At first consideration, these facts strongly suggest the participation of truly psychic influences in the production of the mild hyperglycemia. A prominent rôle has been assigned by some writers to the psychic factor in the "mobilization" of sugar in the organism. Fear, pain and psychic shock enter into this problem. In the pharmacologic institute of the University at Vienna, Morita[2] has tested some of the procedures, such as hemorrhage, mechanical restraint, ether narcosis, diuretics and irritation of sensory nervous elements, which are known to induce a noticeable

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[1] Kendall, E. C.: The Isolation in Crystalline Form of the Compound Containing Iodin, Which Occurs in the Thyroid, this issue, p. 2042.

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[1] Loewy, A., and Rosenberg, S.: Ueber die normale Höhe des Blutzuckergehalts bei Kaninchen und Hunden, Biochem. Ztschr., 1913, lvi, 114. Hirsch, E., and Reinbach, H.: Die Fesselungshyperglykaemie und Fesselungsglykosurie des Kaninchens, Ztschr. f. physiol. Chem., 1913, lxxxvii, 122.

[2] Morita, S.: Untersuchungen an grosshirnlosen Kaninchen, I, Das Verhalten der Blutzuckerkonzentration, Arch. f. exper. Path. u. Pharmakol., 1915, lxxviii, 188.

hyperglycemia on decerebrated animals. The typical response was still observed in the subjects deprived of their cerebral hemispheres. These facts of experiment, for which the psychic explanation will obviously no longer suffice, may not be strictly comparable with the emotional forms of experiment already mentioned. Nevertheless they raise some new questions in the interpretation of something which has hitherto been supposed to be typically psychic in its origin.

THE MISLEADING NAMES OF NOSTRUMS

The deceptive character of much of the advertising which is attached to the "patent medicine" and nostrum business has become familiar to every thoughtful person, whether he be layman or physician. Frequently the claims made are so preposterous in point of unreasonable statement or exaggerated merit that they might well be classed with other types of submerged humor, were it not for the more serious possibility of the harm potentially hidden. A surprising instance of the penalty which the practitioner is liable to pay for his alliance with the nostrum traffic is furnished in the columns of one of our German contemporaries. The exigencies of the war have awakened a patriotic endeavor to supplant all foreign products as far as possible by materials of home manufacture. This is conspicuously true of proprietary drugs and chemicals. In a formidable list[1] including various products of American origin, such as Angier's Emulsion, Battle's Bromidia, Fellows' Syrup, Listerine, Stuart's Dyspepsia Tablets, Vin Mariani, and other familiar names, supposedly suitable substitutes from German sources are suggested. In the case of one of the foreign nostrums, however, the trade name has evidently been responsible for an amusing bit of advice to the readers of one of the leading medical weeklies. "Prescribe German specialties," the warning states. And forthwith the innocent practitioner is told to replace "Bromoseltzer Emmerson" by some effervescent salt of bromin — to which we may add, What's in a name? In this case 3 grains of acetanilid and 7 grains of potassium bromid to a teaspoonful.

DISPOSAL OF WASTE IN RURAL DISTRICTS

The sanitary disposal of human waste is recognized as one of the most important problems confronting the modern municipality, the successful solution of which has required the exercise of much engineering skill and ingenuity. But for the rural community, the isolated farmhouse, the small settlement, where sewers and unlimited water are as yet unattainable, what device is there that is practicable, that is at the same time cheap, simple, and easily constructed and operated, that is fly and germ proof, that is adapted to the conditions of rural life, and that farmers and dwellers in small towns can be urged to provide with some chance of success? These conditions are all essential, but they are by no means easily complied with. That existing methods or lack of methods of waste disposal in rural districts constitute a real and serious danger has been demonstrated beyond question. Hookworm, typhoid, dysentery, tuberculosis, as well as many forms of intestinal parasites are all spread largely through defective methods of disposing of human waste. Any real or lasting improvement in rural sanitary conditions must be preceded by a radical and permanent reform on this subject. This problem, always urgent, is becoming and will continue to become more important as our rural districts become more densely populated. Bearing on the problem is the United States Public Health Service bulletin, recently issued, on "Safe Disposal of Human Excreta" by Lumsden, Stiles and Freeman. After a general discussion of the problem and its importance, the various types of sanitary privies so far devised are discussed, the manner of construction, advantages and disadvantages, cost, etc., being considered in each case, with illustrations and working plans for their construction. Directions are also given for converting an ordinary insanitary privy into a safe one, as well as directions for cleaning and for final disposition of the contents. This pamphlet should be widely circulated among rural homes. The problem is the same in all parts of the country. It can be solved only by the substitution of intelligent methods for the ones still too commonly in vogue. The question is a vital one to our rural population.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

FLORIDA

Dispensary Opened.—The Jacksonville city dispensary was opened for the first time, May 28. The institution will be opened daily from 10 a. m. to noon, and from 3 to 6 p. m.; and on Sundays, from 10 a. m. to noon.

New City Hospital.—The proposed hospital for Miami is to consist of five units: an administration unit, a ward unit, a surgical unit, a maternity unit and a private ward unit. About $30,000 is at present available for the construction of this hospital, but it is estimated that $10,000 more will be required.

Bill for Inspection of Schoolchildren Passed.—The Florida Legislature has passed an act to protect and conserve the health and lives of schoolchildren and promote their efficiency by providing medical inspection and subsequent medical treatment. The act was signed by the governor and became a law June 4. This law was drawn up by Dr. Oliver J. Miller, health officer of Sanford, and its passage was due in great measure to his efforts. The bill provides for a thorough examination of all schoolchildren of the state, including rural schools, under the direction of the State Board of Health. An inspector is appointed for each county and no physician is to have more than 2,500 children under his care. The bill also provides for a sanitary survey of all school buildings and their environments. This action shows that Florida is keeping well abreast of the times on the subject of public health.

Bill for State Institution for Feebleminded.—Both the senate and house have passed the house bill 249, introduced by Hon. Henry H. McKenzie. This act provides for the appointment of a commission to investigate the need of state institutions for the care of the feebleminded and epileptics and directs the governor to appoint a commission of five persons, one of whom shall be a licensed physician of the state, to investigate this matter. The commission is authorized to call on the physicians of the state and on the authorities of city, county, state and private institutions for statistics to enable them intelligently to report to the next legislature. The act appropriates $500, to be used for the payment of traveling expenses of the commissioners. The bill passed had the endorsement of the state medical association. Among those who have been most active in this propaganda are Dr. Daniel C. Main, Welaka, of the Sisco Fruit Company, a farm colony for epileptics, and Dr. William P. Spartling, Welaka, who has given lectures before various societies showing films of epileptic seizures.

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[1] München. med. Wchnschr., 1914, No. 39, p. 2024.

IDAHO

Personal.—Capt. Hubert W. Wilson, Twin Falls, and Lieut. J. Elmer Crouch, Payette, M. C. Idaho N. G., have been detailed to attend the camp of instruction for medical officers at Fort D. A. Russell, Wyo.——Dr. James J. Herrington, Gifford, has been appointed a member of the state board of medical examiners to succeed Dr. Russell Truitt, Cottonwood.

South Idaho Physicians Organize.—The Southern Idaho Medical Association was organized at Twin Falls, June 5, and adopted the constitution and by-laws of the Idaho State Medical Association. The following officers were elected: president, Dr. Joseph N. Davis, Kimberly; vice president, Dr. John F. Schmershall, Jerome; secretary-treasurer, Dr. A. Henry Dunn, Twin Falls, and councilors, Drs. John F. Coughlin, Twin Falls; John M. Minter, Burley, and Edgar L. Simonton, Wendell. The first regular meeting of the association will be held July 13 at Shoshone.

ILLINOIS

Hospital Addition Opened.—In honor of the opening of the addition to St. Anthony's Hospital, Rockford, a dinner was given to the medical staff, June 3. Addresses were made by Bishop Muldoon and Drs. Clifford U. Collins, Peoria, and George P. Gill, Rockford, the first intern at the hospital, and others.

Personal.—Dr. Darwin Kirby, Champaign, was elected president and Dr. Horatio W. Miller, Urbana, secretary of the Twin City Clinical Society, at its meeting in Champaign, June 1.——Dr. Melvin L. Hole has been appointed local surgeon for the Illinois Traction System at Danville.——Dr. Herman P. Harder has been elected president, and Dr. Albert H. Roler, secretary of the Evanston Tuberculosis Institute.——Dr. William F. Bowman, Fishhook, had a narrow escape from drowning while attempting to ford a flooded creek in Brown County. His buggy was overturned and he was swept down stream, but managed to grasp some willow boughs and so remained until assistance arrived.——Dr. Horace B. Dunn, Rockford, has recovered from his recent illness and resumed practice.——Dr. David S. Ray, Cuba, has started on a trip to the Panama Canal and California.

Chicago

Institute of Medicine Started.—The Institute of Medicine of Chicago, a professional society with scientific purposes, was incorporated, June 9, by Drs. Frank Billings, Ludvig Hektoen and William Allen Pusey.

Personal.—Dr. Caroline Hedger returned to Chicago, June 11, after seven months spent in caring for war-stricken Belgians in Europe.——Dr. Joseph Zeisler was elected president, and Dr. Charles P. Caldwell, treasurer, of the Physicians Club of Chicago, at a meeting of the directors held June 10.——Dr. Willoughby Walling was run over by a wagon and seriously injured, June 8.

Local Red Cross Chapter Reinstalled.—The Chicago chapter of the American Red Cross, which was active in Chicago several years ago, was reinstalled June 18, after a reception given to Miss Mabel T. Boardman, Washington, D. C., chairman of the executive committee, and Major-General William C. Gorgas, Surgeon-General, U. S. Army, and chairman of the Red Cross relief board. The reception, which was held at the Blackstone Theater, was given under the auspices of the municipality, the Chicago Association of Commerce, the Chicago Woman's Club, Chicago Medical Society and other civic and commercial organizations.

INDIANA

National Guard Changes.—Major Edson K. Westhafer, Newcastle, has been placed on the retired list.——Major Larue D. Carter, Indianapolis, has been appointed chief surgeon of the state.——Captain Frank W. Foxworthy, Indianapolis, has been placed in charge of Field Hospital No. 1, and ordered up for examination for his majority.——Dr. Edward G. Kyte, Seymour, has applied for examination to the Medical Corps and has been commissioned as first lieutenant.

Personal.—Dr. William F. Willien, Terre Haute, has been appointed secretary of the local board of health in place of Dr. Frank A. Tabor.——Dr. Francis O. Dorsey, Indianapolis, who has been seriously ill at the Methodist Hospital in that city, is reported to be improving.——Dr. George F. Keiper, Lafayette, has been appointed a school trustee of Lafayette.——Dr. James P. Orr, Lebanon, is reported to be seriously ill.

Tribute to Old Physician.—A commemorative dinner was given at the Arlington Hotel, Richmond, June 4, by the medical profession of the Sixth District and other friends to Dr. T. Henry Davis, president and for twenty years a member of the State Board of Health, who for nearly half a century has been a practitioner of Richmond. Dr. Louis F. Ross officiated as toastmaster, Dr. John N. Hurty spoke on "Dr. Davis and the State Board of Health"; Mr. William Dudley Foulke on "The Past and Future of Medicine"; Mr. George H. Knollenberg on "Doctor and Patient"; Hon. D. W. Comstock on "Dr. Davis as a Friend and Citizen"; Dr. D. W. Stevenson on "Dr. Davis and the Profession," and Dr. D. H. Dougan on "The Old Days." Dr. Davis responded, taking for his subject, "Yesterday, To-day and To-morrow." Dr. Davis was presented with a sketch of himself by Henry Mosler and the suggestion was made that the sketch be hung in the high school art gallery or in the city building.

MARYLAND

Flint Club Meeting.—The Flint Club of Baltimore held its three hundred and forty-eighth meeting, June 3. The club was organized twenty-nine years ago and was named in honor of Dr. Austin Flint. The club is a close corporation with a membership of twenty-five and only one elective officer, the secretary and treasurer, who is now Dr. William Caspari. The presiding officer is selected at each meeting.

Alumni Election.—The annual meeting of the Alumni Association of the University of Maryland Medical School, was held May 31, Dr. G. Lane Taneyhill, presiding. The following officers were elected: president, Dr. Albert H. Carroll; vice presidents, Drs. William E. Wiegand, J. C. Clark and George C. Lockard; recording secretary, Dr. Henry O. Reik; assistant recording secretary, Dr. Howard W. Jones; and corresponding secretary, Dr. John I. Pennington.

State Aid for Maryland State University.—At a meeting of the regents of the Maryland State University, June 10, the merger of the Maryland University School of Medicine and the College of Physicians and Surgeons was discussed. The principal business of the meeting was to authorize the treasurer of the university to accept the appropriation made by the legislature for the advancement of medical education. This appropriation is for $15,000 for 1914 and also 1915, together with $5,000 for each year for administrative purposes. The bulk of the total appropriation of $40,000 will be available in October. One half of it is available now.

Personal.—Dr. William S. Thayer, professor of clinical medicine at the Johns Hopkins Medical School, who was operated on recently for appendicitis, has left the hospital. Dr. Thayer has been nominated for one of the five vacancies of the board of overseers of Harvard University. He is one of the ten men nominated by a postcard ballot and stands fourth on the list.——Dr. William Lee Smith, Riderwood, who has been under treatment at the Johns Hopkins Hospital, is much improved and is expected to leave the hospital early in the week.——Dr. Joseph C. Bloodgood, Baltimore, has left for a ten-day trip to Minneapolis and other points in the West.——Dr. Thomas S. Cullen, who was operated on at Johns Hopkins Hospital, May 29, for the removal of gallstones, is reported to be making satisfactory progress toward recovery.

Psychopathic Building Opened.—The John Hubner Psychopathic Building of the Springfield State Hospital, Sykesville, was dedicated June 9. It is a three-story and basement brick structure in the form of a Maltese cross, equipped with laboratories, operating rooms, hydraulic department, continuous baths and many other necessary departments. One wing of the building will be devoted to administration offices. The building was erected at a cost of about $125,000 and is for the care of acute cases of mental disease. The speakers on this occasion were: Dr. Elmer E. Southard, Cambridge, director of the Boston Psychopathic Hospital; Dr. Hugh H. Young, Baltimore, president of the Maryland State Lunacy Commission; Dr. Henry M. Hurd, Baltimore; Dr. Lewellys F. Barker, Baltimore, and Dr. Edward N. Brush, Towson, president of the American Medico-Psychological Association. In appreciation of his twenty years continuous service as a member of the board of managers, Mr. John Hubner, for whom the building is named, was presented with a loving cup.

MASSACHUSETTS

Creel Declines Health Commissionership.—P. A. Surg. Richard H. Creel, U. S. P. H. S., has been obliged to decline the position offered him as health commissioner of Boston on account of his health which has been impaired by long and trying years of service in the tropics.

Amendment to Practice Act.—A letter from Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, states that the Massachusetts Legislature, in the session just closed, passed an amendment to the medical practice act, which requires that all applicants for registration as physicians in the state must furnish to the licensing board satisfactory proof that they have received the degree of doctor of medicine, or its equivalent, from a legally chartered medical school.

Changes in State Hospitals.—Drs. Willis W. Gleason and Mark Meisner have resigned from the Westboro State Hospital.——Dr. John M. Thompson, Boston, has resigned from the staff of the Foxboro State Hospital.——Dr. James F. McFadden, Foxboro, has resigned from the Psychopathic State Hospital to accept a position in the Foxboro State Hospital.——Dr. Geneva Tryon, Cambridge, Mass., has been appointed assistant physician at the Boston State Hospital for six months.——Dr. Egbert W. Fell, Boston, has been appointed first assistant physician in the psychopathic department of the Boston State Hospital for one month.

Testimonial to Dr. Theobald Smith.—A complimentary dinner was given at the Harvard Club June 2 by about 200 friends and associates to Dr. Theobald Smith, Boston, for twenty years Fabyan professor in Harvard Medical School, who is soon to take charge of the department of animal pathology in the Rockefeller Institute. President A. Lawrence Lowell of Harvard University presided and addresses were made by Drs. Frederick C. Shattuck, Boston; William S. Thayer, Baltimore; Simon Flexner, New York City; former president C. W. Eliot, Drs. William H. Welch, Baltimore; Edward H. Bradford, Boston and Dr. Theobald Smith, Boston.

Neurosyphilis Discussed.—Under the auspices of the trustees of the Boston State Hospital, a symposium on "Neurosyphilis, Medical and Social Progress," was held at the Psychopathic Hospital, Fenwood Road, May 27. The subject was divided into social service methods and results, including methods of investigation, the question of enlightenment of members of the family and patients, family pathographies in respect to syphilis and the economic aspect of the problem. Under the head of clinical diagnosis were considered the question of latent neurosyphilis and paresis sine paresi, types of neurosyphilis and cerebrospinal fluid studies. The third portion of the program devoted to postmortem studies took up the convolutional type in paretics and histologic studies.

Boston Quarantine Transferred.—Surg. Samuel B. Grubbs, U. S. P. H. S., arrived in Boston May 28 and reported to the mayor on the following day. In accordance with an agreement between the city and the federal governments, Surgeon Grubbs assumed charge of the quarantine station at Gallup's Island, June 1. The agreement provides that the federal government shall hold the lease of the station for one year at an annual rental of $1 pending the agreement as to the price for which the station shall be sold by the city; providing also that the federal government shall take over the city employees now in the quarantine service. This will result in Dr. Francis X. Crawford, the present port physician, continuing in service under the new quarantine officer. Dr. Grubbs will reside in Boston and will have his office at the Immigration Station, Long Wharf.

Alumni Meetings.—At the triennial meeting of the Harvard Alumni Association held May 20 Dr. Samuel B. Woodward, Worcester, presided and addresses were made by Gen. Leonard Wood, U. S. Army and others.——The annual meeting and banquet of Tuft's Medical School Alumni Association, Boston, was held May 20 under the presidency of Dr. Herbert A. Donnell, Medford. After the dinner President Herman C. Bumpus, Dr. Charles F. Painter, Boston, dean of the medical school and Prof. Charles D. Knowlton, Boston, delivered addresses and the following officers were elected: president, Dr. James F. Coupal; vice presidents, Drs. Isador H. Coriat, Emma J. Wagner, West Somerville, Sarah E. Coppinger and William H. Greene; secretary, Dr. Andrew P. Cornwall; assistant secretary, Dr. Edith M. Brooks; and treasurer, Dr. Russell B. Sprague, all of Boston.

Personal.—Dr. J. Herbert Young, Newton, has been appointed medical director of the Boston Milk and Baby Hygiene Association, succeeding Dr. Arthur A. Howard, Boston.——Dr. Ernest O. Weinert, Boston, has been recalled to Italy for war duty and sailed June 6.——Dr. William C. Hanson, Boston, has been removed from the position of director of records and publicity for the State Health Commission by Health Commissioner Allan J. McLaughlin and the division has been abolished.——Dr. Thomas F. Harrington, Boston, has been elected deputy state health commissioner by the State Board of Labor and Industry.——Dr. Richard Pierson Strong, Boston, has been elected professor of tropical medicine in the Harvard Medical School, a position for which he had previously received the nomination of the corporation.——Drs. David L. Edsall, Boston and Milton, and Joseph E. Lamoureux, Lowell, have been reappointed members of the Public Health Council of the state.——Dr. Franklin Dexter, Boston, has been appointed director of scholarships in the Harvard medical and dental schools.

MISSOURI

Personal.—Arthur M. Alden, instructor in bacteriology in the St. Louis University, has been appointed pathologist to the Santo Tomas Hospital, Panama City, Panama, and sails from New York, next week.——Dr. Fabian L. Pratt, Kansas City, sailed from New York May 29, to enter the French Medical Service.——Dr. Joseph M. Yater, Nevada, has been appointed a member of the board of regents of the State Normal School, Springfield.——Dr. James Stewart, St. Louis, is making a good recovery after an operation performed May 3, at the Jewish Hospital.

State Health Board Upheld.—The Supreme Court of Missouri rendered a decision June 1 upholding the right of the State Board of Health to revoke licenses of physicians who write prescriptions for liquor in "dry" counties. The case before the court was that of Dr. A. M. Conway, Columbus, who is reported to have written 778 prescriptions for liquor during February and March, 1910, and is said to have received twenty-five cents each for these prescriptions, which contain no ingredients except whisky. This case was tried in the Boone County Court and resulted in conviction and a short time later the State Board of Health revoked the license of Dr. Conway and an appeal was taken to the Supreme Court with the result as stated above.

Estate Goes to Hospital.—The late Mr. George D. Barnard, donor and beneficiary of the Barnard Free Skin and Cancer Hospital of St. Louis, left an estate of $2,000,000 well invested in first-class business securities. After annuities to his widow and various institutions amounting to about $50,000 are paid, the residue of the income goes to the Barnard Free Skin and Cancer Hospital. After the expiration of the annuities, through the death of the various legatees, this institution will receive the income from the whole estate. About $16,000 a year, consisting of small sums to various local institutions, will be a perpetual charge against the estate. The Barnard Free Skin and Cancer Hospital has had up to this time an income of over $30,000. This, together with that from the Barnard estate, will enable the institution to extend its investigations along much broader lines than it has been possible to pursue in the past.

Health Tests for Waiters and Cooks.—The Medical Society of the City Hospital Alumni of St. Louis, has adopted resolutions setting forth that on account of the prevalence of communicable diseases among employees in kitchen and dining room service in St. Louis, every employee found to be diseased should be excluded from service; that the Division of Health should ascertain the presence of any disease of any employee in eating places; that the director of the Department of Public Health should consider the public needs in this direction and secure the enactment of the appropriate legislation to give authority to the Division of Health to initiate inquiries and conduct examinations; that all kitchen and dining room help, before employment therein, shall be required to undergo a physical examination under the direction of the Department of Health and that no one failing to secure a clean bill of health, shall be eligible to employment. These resolutions were placed in the hands of the committee on municipal affairs and public health, with instructions to arrange for a conference with city officials touching the details of the proposed resolutions.

NEW YORK

Hospital Celebrates Anniversary.—St. John's Hospital, Long Island City, recently celebrated its twenty-fourth anniversary, on which occasion Dr. James J. Walsh, New York City, delivered the address.

Child Welfare Day.—The State Department of Health has designated Sunday, June 20, as Child Welfare Day. Pastors of all denominations have been asked to cooperate by preaching or giving short talks on child welfare and the prevention of infant mortality.

Personal.—Syracuse University conferred the degree of LL.D. on Dr. Henry L. Elsner, Syracuse, June 9.——Dr. C. Floyd Haviland, first assistant physician at the Kings Park State Hospital, Long Island, has been appointed superintendent of the Connecticut State Hospital, Middletown, vice Dr. Henry S. Noble, deceased.

Tuberculosis Camp Opened. — The eighth season of the open-air camp of the Buffalo Association for the Relief and Control of Tuberculosis opened June 1. Only ambulant cases are accepted at this camp. The camp will accommodate about sixty full-time patients and many additional day patients. Dr. Francis J. Lennon continues as medical director and is assisted by Dr. John G. Stowe.

Features of Alumni Meeting.—At the annual banquet of the Alumni Association of the medical department of the University of Buffalo, June 3, recognition was given to Dr. Peter W. Van Peyma, Buffalo, of the class of '72, teacher and clinical professor of obstetrics in the university for thirty years and the representative of the Medical Alumni on the University Council, who retires this year. The graduating class presented a portrait of Dr. Van Peyma to the university to be hung in the college library. At the meeting steps were taken for the establishment of an alumni fund to be used for the advancement of teaching and research work in the institution. Among the many interesting features of the meeting were the surgical diagnostic clinic held by Dr. George W. Crile, Cleveland, and the alumni oration on "Cerebral Localization with Especial Reference to the General Practitioner," by Dr. William House, Portland, Ore.

New York City

Health Department Investigating Wall Street.—Dr. Sigismund S. Goldwater, Commissioner of Health, has issued an order to the sanitary bureau and the division of occupational diseases to investigate sanitary conditions in the office buildings below Fulton Street. The inspection will be similar to that undertaken in factories and sweatshops throughout the city.

Drug Victims Fill City Prisons.—At a recent conference on crime and environment, Dr. Katherine B. Davis, Commissioner of Corrections, stated that on March 1, 1914, there were 4,647 persons in the correctional institutions of New York City, while on March 1, 1915, there were approximately 7,500, an increase of almost 50 per cent. Dr. Davis attributes this increase to the drug crusades of the past fifteen months which have increased the number of commitments of users of habit-forming drugs as well as of persons convicted of trafficking in narcotics.

Patients to Pay If Able.—The city has decided to operate the Municipal Tuberculosis Sanatorium at Otisville on Shawangunk Mountain, on a new plan. Heretofore, it has been the practice to receive all regularly admitted persons as free patients, but from this time on, patients admitted to the institution will be put on the same basis as those who seek to receive treatment in other city hospitals. Inquiry will be made as to their financial ability to make payment and those who are found to be able to pay, will be given the opportunity. Three uniform rates have been decided on, $3.50, $7.00 and $10.50 a week. Patients unable to pay and otherwise suitable as cases for admittance, will be admitted and treated as before, free of charge.

To War Against Strong Drink.—Dr. Sigismund S. Goldwater has declared officially that he is about to initiate a campaign against the use of spirituous liquors in New York City. He has sent a mandatory letter to the Advisory Council of the Department of Health asking for the immediate organization of a committee to put such a campaign in force. Dr. Goldwater acknowledges that he has undertaken a "big job" but contends that the regulation of the liquor traffic is a duty of the Health Department since such a large proportion of the poverty, crime and sickness of the city can be traced directly to the influence of alcohol. It is stated that the campaign will be one that will appeal to popular fancy and will have as its slogan "Get on the water wagon."

NORTH CAROLINA

Dinner to Chicago Physician.—Dr. Noble S. Heaney, Chicago, was given a complimentary dinner by the Buncombe County Medical Society at Asheville, May 21.

Correction.—Dr. John A. Williams, Greensboro, announces that the report in The Journal that he had a stroke of paralysis in New York City, is incorrect. Dr. Williams reports that he is in good health.

State Hospital Report.—The State Hospital for the Insane, Morgantown, reports a residence population of 1,404. The opening of the new colony building last month gave additional room and sixty-two patients have already been admitted to the building.

Institution for Sick Babies.—A donor who does not desire his name to be made public, has tendered $20,000 to the city of Wilmington, to provide an institution for the care of infants whose home conditions are not sufficient for their care when ill. The donor announces that the fund will be available as soon as a sufficient amount to guarantee maintenance charges is secured.

Dean Confers Degrees in Virginia.—Dr. John C. Montgomery, dean of the North Carolina Medical College, Charlotte, attended the recent commencement of the Medical College of Virginia, Richmond, to confer the degrees on the students of the North Carolina Medical College who matriculated before the amalgamation of the institution with the Medical College of Virginia.

Canvass of Derelict Counties.—Dr. J. R. Gordon, chief of the Bureau of Vital Statistics of the State Board of Health, has made a special canvass of certain derelict counties of the state in order to secure more efficient and complete reports of births and deaths. The health department is not assured that all births are being reported while the death records are believed to be fairly correct.

Personal.—Dr. Lewis B. McBrayer, superintendent of the State Sanatorium for Tuberculosis, has been appointed postmaster of Sanitarium.——Dr. Claude O. Abernethy, Raleigh, has returned after a period of postgraduate study in New York City.——Dr. William K. Reid has been elected city physician of Charlotte, and Dr. Eugene P. Gray, city physician of Winston-Salem.——Dr. Carl V. Reynolds has been reelected health officer of Asheville.

PENNSYLVANIA

Optometry Bill Vetoed.—On June 3, Governor Brumbaugh vetoed the House bill to create a separate bureau for licensing optometrists, to practice in Pennsylvania. A similar bill was vetoed earlier in the session and with certain amendments it was again passed by the assembly.

State Health Bureau Wins Medal.—On June 10, recorder of deeds Ernest L. Tustin, a member of the Pennsylvania commission to the Panama-Pacific Exposition, announced that the grand prize for the best health department had been awarded to Pennsylvania with personal praise for Dr. Samuel D. Dixon, state commissioner of health.

Philadelphia

Resignation of Assistant Director.—Alexander M. Wilson, assistant director of the Department of Health and Charities, has resigned, as he has been appointed director of investigations of the department of charities in New York City, a position paying $4,000 a year, the same salary he has been receiving here.

Donation of Surgical Instruments Requested.—The French Relief Committee of Philadelphia announces that surgical instruments are urgently needed in the smaller hospitals in France. An appeal is made to surgeons throughout the United States to donate for this purpose such instruments as they can spare, to be forwarded to France. Such instruments may be sent to the French Relief Committee, 708 Sansom Street, Philadelphia.

Personal.—Dr. Samuel McClary, III, has been elected assistant professor of surgery in the Medico-Chirurgical

College of Philadelphia.——Dr. R. Tait McKenzie, director of physical education at the University of Pennsylvania, sailed for London, May 29, where he will take charge of a new physical examination department, established by the British government.——The board of city trusts, on June 9, appointed Dr. Paul B. Cassidy and Dr. Oscar G. Flegley, respectively, as first and second clinical assistants and Dr. Harry Judge as resident to the Wills' Eye Hospital.——Dr. Ella B. Everitt has been elected president of Wilson College for Women at Chambersburg.

To Reduce Infant Mortality.—Greater efforts than ever are being made this summer to reduce infant mortality. June 5, Dr. Ziegler, director of public health and charities, announced the appointment of fifteen nurses to the division of child hygiene. The full number of nurses for the work among children will be increased to forty for the work during July. Last summer there were about eight nurses engaged in this work. The nurses are to be paid out of an appropriation of $7,500. They will make a house to house visit which will bring home to patients by actual contact the teaching and necessity for scientifically safeguarding the health of the children.

Surgical Unit Sails.—Dr. J. William White and the University of Pennsylvania medical unit, which is to take charge of an entire floor of the American Ambulance Hospital at Neuilly-sur-Seine, during July, August and September, sailed from New York, June 12, on the American liner, *St. Louis.* Dr. James B. Hutchison will be the chief surgeon, and the party numbers fourteen, including four nurses. Dr. Thomas G. Aller is the dental surgeon and Dr. David M. Davis of Johns Hopkins University will have charge of the bacteriologic research. At least $10,000 will be required to maintain the university unit, $7,000 of which has already been collected. No member of the party will receive a salary and most of the physicians are paying their expenses. Six dental surgeons who were unable to secure passage on the *St. Louis* will sail for France on Saturday, June 19, and will join the contingent at the American Ambulance Hospital.

TENNESSEE

Appropriation for Tuberculosis Hospital.—The house of representatives on May 7 passed the bill appropriating $50,000 for a state hospital for tuberculosis.

Free Dispensary for Chattanooga.—At a meeting held in Chattanooga, May 10, final plans for the establishment of a free clinic or dispensary were developed. The amount required for the establishment of the clinic will be about $2,500. The work is expected to be affiliated with that of the Associated Charities and Erlanger Hospital.

Witherspoon Club Banquet.—The annual banquet of the Witherspoon Club Society composed of the leading members of the senior class of the medical department of Vanderbilt University, Nashville, was held May 8. Dr. John A. Witherspoon, Nashville, in whose honor the club was named, was present and delivered an address.

Board of Preliminary Examiners.—Legislation recently obtained provides for a board of preliminary examiners to examine all applicants for license to practice the healing art as to their literary qualifications. Unless candidates are found to be duly qualified, they will not be permitted to take the examination for license to practice. The board consists of three members, and those appointed, respectively, for six, four and two years, are Profs. I. S. Hudson, Nashville; C. C. English, Bristol, and J. W. S. Rhea, Memphis. All members thereafter will be appointed to serve for a term of six years.

Personal.—Dr. Leonard W. Edwards, Nashville, has been appointed physician to the Nashville Penitentiary.——Dr. J. A. B. Ward, Clarksville, was seriously injured by the overturning of his automobile, recently.——Dr. Isadore Lewinthal has been reelected president of the State Board of Charities.——As the result of a competitive examination, Dr. Lucius P. Brown, state food and drug commissioner of Tennessee, has been appointed director of the bureau of inspection of the Department of Health of New York.——Dr. James K. Goodloe has been appointed city prescriptionist of Nashville, succeeding the late Dr. Peter Hager.——Dr. T. P. Holman, Fayetteville, is reported to be critically ill as the result of a cerebral hemorrhage.——Dr. John D. Brewer, Newbern; Reese W. Patterson, Knoxville, and Young W. Haley, Nashville, have been appointed members of the State Board of Examiners for Nurses. There are also two nurses on the board.

TEXAS

Medical College Closed.—It is reported that the Southern Methodist University of Dallas will not reopen its medical department next fall owing to the lack of adequate finances.

Medical Building.—A building is to be erected in Dallas especially for the use of physicians by Drs. Raleigh W. Baird, Harold M. Doolittle, Alfred I. Folsom and Robert B. McBride, all of Dallas.

New Hospital.—The new hospital for the Masonic fraternity near Arlington is completed and will be ready for occupancy this month. The institution will accommodate about thirty patients and will cost, when completed, about $20,000.

Personal.—Dr. Byron F. Kingsley, San Antonio, has been reelected president and Dr. George W. Sims, San Antonio, has been elected vice president of the Bexar County Humane Society.—Dr. Marvin P. Stone, Dallas, has been appointed surgeon-in-chief of the Masonic Hospital at the Home for Aged Masons, Arlington.

Quarantine Station Moved.—The office of Surg. Robert L. Wilson, surgeon in charge of the United States Quarantine Station at Galveston, has been moved from the old postoffice building to the [illegible] Pelican Spit. The new buildings are [illegible] and will be formally opened about July 1.

Appropriation for State Board.—The House of Representatives has passed an appropriation for the State Board of Health carrying a total of $141,840.00 for the biennium. An amendment was also adopted adding $4,000 a year to this appropriation for the establishment of a course in hygiene, sanitation and improvement of public health in public schools of the state, under the direction of the State Board of Health.

Federal Control of Quarantine.—Colonel Walter Gresham of the Deep Water Committee of the Galveson Commercial Association laid before the governor and the finance committees of the legislature a proposition to vest the authority of port quarantine in the federal government instead of the state. This, it is alleged, will mean a saving to Galveston shipping of from $15,000 to $20,000 a year and a more thorough and efficient service in quarantine administration.

Addition to Teaching Hospital.—An official report states that a woman's addition to the John Sealy Hospital has been erected at a cost of $125,000, the money being donated by Mrs. R. Waverly Smith and her brother, Mr. John Sealy of Galveston and that a new nurses' home, costing $90,000 and accommodating fifty-five nurses has been erected by the University of Texas at Galveston, in close proximity to the John Sealy Hospital. This is the teaching hospital of the Department of Medicine of the University of Texas.

Embargo Lifted.—A proclamation was issued by the governor May 28 raising the embargo on cattle from all except the states of Connecticut, Delaware, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Virginia, West Virginia, Wisconsin and the counties of Butler, Cowley, Sedgwick and Sumner in Kansas. The proclamation also provides twenty-two points of entry at which cattle may be shipped from the border of Mexico into the United States, under stated restrictions.

WASHINGTON

New Hospital.—At Walla Walla and Waitsburg, April 21, $12,702 was subscribed for the new St. Mary's Hospital, Walla Walla. The Sisters of Providence have already $62,000 available and only a little more than $10,000 is now required before the work on the buildings can be commenced.

CANADA

Ambulance Donated.—Messrs. A. Davis and Son, Kingston, Ont., have donated a motor ambulance to Queen's Stationary Hospital.

Nurses for Convalescent Homes.—The Convalescent Homes being established throughout Canada to attend to wounded and invalid soldiers are to have the services of the Victorian Order of Nurses.

For Overseas Service.—The following names are mentioned in connection with the Base Hospital for overseas service, donated by the Ontario government: Drs. Herbert J. Hamilton, Rowland B. Orr, Herbert A. Bruce and Harry B.

Anderson. These are all well-known practitioners in Toronto, and if finally appointed will be given the rank of lieutenant-colonel.

Reciprocity for Druggists.—The Ontario Pharmaceutical Association have almost completed negotiations for reciprocity with the Pharmaceutical Association of Australia. A deputation of druggists representing the whole Dominion is to wait on the government of Ottawa in recognition of the pharmacists who are at the front in the military training camps. The druggists want commissions for their members the same as for dentists and veterinary surgeons.

Medical Roster for Overseas Duty.—The Canadian Relief Committee in Toronto have endorsed the proposition to form a roster of medical men for overseas duty. The suggestion is to accept in turn, as required, a limited number of members of the medical profession for six months' duty. As hundreds are anxious to take part in this particular work, it is felt that some arrangement could be made whereby engagements for indefinite periods would be done away with.

Will Protect Practices of Physicians at Front.—At the thirty-fifth annual meeting of the Ontario Medical Association a resolution was adopted expressing the appreciation of the association that so many of its members have responded to the call of the Empire or have entered on active service, and expressing the intention of the association to look after the work of these physicians during their absence and to see that their practices are retained and restored to them on their return.

Personal.—Dr. Hibbert W. Hill, who has been on duty with the State Board of Health of Minnesota for some time, has been renamed as director of the Institute of Public Health of London, Ont.——Dr. David H. Dowsley, formerly of Ottawa, is believed to have been lost on the *Lusitania*.——Dr. Angus W. McPherson, Peterboro, who was recently elected president of the Ontario Association of Health Officers, is at present in England on overseas duty.——Dr. James D. MacDonald, Huntsville, Ont., has been chosen liberal candidate for the constituency of Muskoka, Ont.

GENERAL

Louisiana Health Car Goes to San Francisco.—The educational hygiene exhibit cars of the Louisiana State Board of Health will be taken to San Francisco. The cars leave New Orleans on the morning of June 16, and are scheduled to arrive at San Francisco some time on the 20th. An opportunity is, therefore, afforded to those who attend the meeting to see this widely known exhibit.

Army Medical School Graduation.—At the annual commencement of the United States Army Medical School, Washington, held in the auditorium of the school, May 31, thirteen graduates received their diplomas from Assistant Secretary of War Breckenridge. The Hoff memorial medal was awarded to Lieut. Harry D. Offut, M. R. C., U. S. A., Maryland, by Col. John Van R. Hoff, M. C., U. S. A., Washington (retired), and the Sternberg medal was awarded Lieut. Raymond E. Scott of Washington. The principal address was made by Lieut. Reynold Webb Wilcox, M. R. C., U. S. A., New York.

Bequests and Donations.—The following bequests and donations have recently been announced:

Sibley Memorial Hospital, Washington, Pa.; Benjamin A. Haywood Memorial Dispensary and Pathological Laboratories, donation by Mrs. Elizabeth E. Haywood, Sheran.

Jefferson Medical College, Philadelphia, for the endowment fund, $100,000, subject to the raising of an equal amount by the alumni of the institution; Home of the Merciful Saviour for Crippled Children, Philadelphia, $1,000, and a contingent bequest of one-half of the residue of the estate, the principal to revert in equal parts to the University and Episcopal hospitals, by the will of Josephine Lewis.

Episcopal and St. Timothy's hospitals, Philadelphia, each $1,000, by the will of Dr. John L. Brumley.

Methodist Hospital, Philadelphia, $1,000 by the will of Martha Moore.

St. Timothy's Hospital, Philadelphia, a contingent bequest by the will of Charlotte M. King.

Conference on Race Betterment.—The Second National Conference on Race Betterment will be held at San Francisco from August 5 to 8. During the first week in August the American Genetic Association, American Association for the Advancement of Science, American Anthropological Association, American Association for the Study of Feeble Minded and the American Social Hygiene Association will hold congress in and near San Francisco. It is the intention of the Conference on Race Betterment to cooperate as far as possible with the above-named organizations. The headquarters of this conference will be on the exposition grounds, and the sessions for the greater part will be held at the exposition.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending June 12, 1915, lists the following contributions:

New England Hospital Medical Society, Boston, Mass.		$ 30.00
Aux Plaines Branch of Chicago Medical Society, Maywood Ill.		44.00
Vigo County Medical Society, Terre Haute, Ind.		25.00
Dr. Jacob Schwinn, Wheeling, W. Va.		10.00
Dr. John Bryant, Boston, Mass.		10.00
Drs. Robert J. and John L. Sagerson, Johnstown, Pa.		10.00
Dr. Catherine H. Travis, New Britain, Conn.		2.00
Dr. George B. Lake, Manila, P. I.		2.00
Dr. M. J. Kenefick, Algona, Ia.		10.00
Dr. E. W. Link, Palestine, Tex. (Second contribution)		10.00
Receipts for the week ending June 12		$ 153.00
Previously reported receipts		7,159.00
Total receipts		$7,312.00
Disbursements for the week ending June 12:		
140 standard boxes of food at $2.28	$ 319.20	
Previously reported disbursements:		
1,625 standard boxes of food at $2.20	$3,575.00	
1,274 standard boxes of food at 2.30	2,930.20	
213 standard boxes of food at 2.28	485.64	
Total disbursements		7,310.04
Balance		$ 1.96

F. F. Simpson, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Subscription Faker Arrested.—The Periodical Publishers' Association has succeeded in arresting one Floyd Maxwell, who, it is said, has for some time been soliciting from physicians subscriptions to such magazines as the Literary Digest, and the Current Opinion, offering medical books as premiums. The Journal has on several occasions published warnings against a scheme of this nature, especially as several physicians have notified The Journal that they had been victimized. Those who have been caught by this man should send the evidence to the Chief of Police, Oshkosh, Wis., in which city Maxwell was arrested, to aid in prosecuting the case. The fact that this particular individual has been arrested should not, however, encourage physicians to relax their watchfulness. Such schemes are continually being foisted on physicians by various subscription fakers, and it is well to be very cautious of too bountiful offers.

Recent Regulations Under the Harrison Narcotic Law.—The following are recent regulations under the Harrison Narcotic Law considered editorially in this issue of The Journal, page 2070.

Meaning of Section 6

. . . The question arises whether or not "prescriptions" come within the definition of "preparations" or "remedies," as given in the act. The word "preparations," as generally used and understood, means ready-made or prepared medicines and the word "remedies" means that which cures or is efficacious in a specific disease or diseases under all conditions, while the term "prescription" is the written directions or recipe of a physician for the compounding or preparing of a medicine and directions for its use to meet the existing conditions in the case of a particular patient.

It is, therefore, apparent that the exemptions in Section 6 of the Act as interpreted in Treasury Decision No. 2172, relating to "preparations and remedies" containing not more than the specified quantities of the drugs enumerated, do not apply to "prescriptions" written by registered physicians calling for any quantity of the narcotic drug, unless such "prescription" is written for a "preparation or remedy" prepared in accordance with the U. S. Pharmacopeia, National Formulary, or other formula, or for a "remedy or preparation" prepared under private or proprietary formula, carried in stock by a dealer, which may be dispensed without a "prescription."

Every "prescription" therefore, containing a narcotic drug in any quantity, with the exemptions noted, must have indicated thereon the name and address of the patient, the date, the name and address of the physician, and his registry number. Such "prescriptions" cannot be refilled and must be filed for a period of two years.

Mail Orders

. . . The fact that registration is limited to certain named persons indicates that there must be a power of discrimination vested in collectors of internal revenue as to who shall be registered and from whom special tax may be received. Therefore, persons not legitimately engaged in the exercise of their trade or profession cannot legally register under the terms of this Act. For example, a party must be a legitimate producer, importer, manufacturer, seller, or distributor of the aforesaid drugs, and likewise a physician, dentist, or veterinary surgeon can register under this act and dispense these drugs "in the course of his professional practice only." It also follows from the express language of the act that such physician, dentist, or veterinary surgeon can prescribe such drugs when he "has been employed to prescribe for the particular patient receiving such drugs," and on whom he "shall personally attend in the course of his professional practice only," and such prescriptions must be made "in the legitimate practice of his profession," and then only when "employed to prescribe for the particular person receiving such drugs."

The above quotations from the law indicate the correct limitation on the professional prescription or distribution of said drugs by persons whether registered or not.

It is apparent from the foregoing that the duties of collectors and other internal revenue officers do not end, under the provisions of this act, with simple registration. If parties secure registration through misrepresentation or fraud, such registration is null and void and does not protect them from prosecution for the illegal use of these drugs, and it is the duty of collectors and other internal revenue officers when such cases are discovered to investigate the same, and where the law has been violated in line with the foregoing, to seize and proceed to forfeit the prohibited drugs illegally in possession of such parties, and recommend such persons to the district attorney for indictment and prosecution.

The foregoing has special application to those persons who, registering as physicians, prescribe or distribute narcotic drugs or preparations on receipt of mail orders received from so-called patients, or who, under the laws of the state or under municipal regulations, are not permitted to practice medicine.

Issuing Numbers

. . . In issuing registry numbers and special tax stamps under . . . Harrison Narcotic Law, collectors of interneal revenue will require persons making applications to state, under oath, in the blank space on Form 678, or if not sufficient space on the line for that purpose it should be in the form of an affidavit attached to the application on this form, that they will engage in administering, dispensing, or prescribing narcotic drugs only in the legitimate practice of medicine, dentistry, or veterinary surgery; or will engage in the business of producing, importing, manufacturing, compounding, dealing in, dispensing, selling, or distributing, as the case may be, only those narcotic drugs for which they are duly qualified by law, that is, "The undersigned is now engaged or on and after ————will engage in the legitimate practice of medicine (dentistry, or veterinary surgery), and is, or are, duly authorized by law to administer, dispense, or prescribe narcotic drugs," or "The undersigned is now engaged, or on and after ———— will engage in the lawful business of producing (importing, manufacturing, compounding, dealing in, dispensing, selling, or distributing) narcotic drugs."

FOREIGN

Plague Declining in Dutch East Indies.—According to the *Nederlandsch Tijdschrift*, the number of recorded cases of plague in Java during a recent eleven-day period was 119, with 103 deaths. During the corresponding period last year there were 694 cases, with 624 deaths.

Lectures on Medicolegal Aspects of Industrial Accidents.—The *Policlinico* mentions that Professor Bernacchi, consultant to the Cassa Nazionale infortuni sul lavoro, has been appointed lecturer at the University of Rome on industrial accidents. The official title of the course is "Unfortunistica medicolegale."

Antifly Campaign in Holland.—The Amsterdam Board of Health is busily distributing small illustrated pamphlets to educate the public in the dangers from the presence of flies and in means to exterminate them. The motto for the antifly campaign is repeated again and again; "No filth, no flies," *Waar geen vuil is, zijn geen vliegen.*

Italian Society for Experimental Phonetics.—An organization has recently been founded for this purpose, and one meeting has already been held at Rome. The membership includes physicians and scientists especially interested in the throat, and teachers of singing. Ferreri and Bilancioni reported the results of much research on fatigue of the larynx, and Gradenigo the results of study of phonation and respiration in a young woman with an entirely healthy throat who had been tracheotomized by mistake. Ponzo of Turin exhibited a modification of the Marey drum which records the tempo as well.

Metchnikoff's Seventieth Birthday.—Our foreign exchanges now contain an occasional article with the subheading, "Dedicated to Elias Metchnikoff on the Occasion of his Seventieth Birthday, May 16, 1915." These articles had been prepared for an international *Festschrift*, which was to have been presented to him on that date, but the war broke up the plans for the volume and the contributions are being published separately in various neutral journals. He is a native of southern Russia but has had a laboratory at the Paris Pasteur Institute since its erection, over twenty-seven years ago. His discoveries in phagocytosis were made previously in Italy. Although he studied under German physicians, he never took a degree in medicine.

Deaths in the Profession Abroad.—J. Englisch, professor emeritus of surgery, especially surgery of the urinary apparatus, at the University of Vienna, aged 80. The list of his works on urologic subjects is a long one.——M. Landau, assistant at the Freiburg Institute of Pathology, but lately in charge of a military hospital at Vienna, aged 29.——J. De Bary, of Frankfort-on-the-Main, aged 75.——Among those who have fallen on the battle field are A. Zahn, assistant at the university medical clinic at Greifswald, aged 29, son of the Geneva pathologist, F. W. Zahn; H. Deetjen, co-worker in the Institute for Cancer Research at Heidelberg since 1908, aged 48. It is to him we owe most of our knowledge of the blood platelets, as he worked out methods for isolating and keeping alive the platelets and studying their connection with coagulation.

WAR NOTES

Insane Among Crews of Interned Vessels.—Among the 5,000 sailors on the interned German vessels in New York harbor twelve cases of insanity have been reported to the county medical authorities in Hoboken. Health Officer Dr. Joseph Stack says that 90 per cent. of the interned crews suffer from anemia and are undernourished.

From Vienna.—A letter from Vienna in the *Medizinische Klinik* states that the limelight of public attention is now focused on the louse. The lay press teems with articles and advertisements on extermination of vermin. The newly organized society for prophylaxis of epidemic diseases is conducting a vigorous campaign for compulsory vaccination, which the medical profession has been urging for years. The authorities are now being besieged on all hands to order that the populace must be vaccinated. The medical faculty of the university bases its urgent plea mainly on the analogy between conditions in Austria now and those in Prussia after the war of 1870. In the army in both countries vaccination was compulsory, but the populace in general was not vaccinated, and Prussia then had an epidemic of smallpox, with over 240,000 cases. Compulsory vaccination was then enforced and by 1874 smallpox had been banished from the land. Recent Vienna statistics show that 98 per cent. of the mortality from smallpox is among the unvaccinated or never revaccinated.

LONDON LETTER

London, May 28, 1915.

The War

THE CONDITION OF SERBIA

From Valievo, in Serbia, typhus spread, being carried by soldiers returning to their homes and by travelers on the railway. In a few weeks the country had become a seething mass of misery and pestilence. The number of patients far exceeded the hospital accommodation. In the Nish hospital they lay three and four in a bed, while others lay on the floor and even under the beds. No medical service adequate to the conditions existed. Physicians and nurses and others bravely volunteered from Britain, France and America, and many of them succumbed to typhus. The work done by these devoted helpers is beyond all praise. One English woman, Mrs. Hardy, who came alone, took charge single-handed of a surgical hospital of about 500 patients, and with the help of one woman, a Serbian physician, turned it into a marvel of order and cleanliness. In February the British Army Medical Service sent out a sanitary department under Colonel Hunter. When they arrived they found that apart from the wounded there were 37,000 sick in the army, including 15,000 cases of fever, of which more than 8,000 were typhus and nearly 1,500 typhoid. It was difficult to ascertain precisely the condition of the civil population, but in Kraguievatz alone, a town of 20,000 inhabitants, there were 1,400 cases of typhus, and the number of deaths in three months had been 3,400, or thirty-four times the normal. By all indications, typhus and relapsing fever were increasing rapidly; there were rumors of plague, and an obvious danger of cholera, unless effective measures could be taken before the warm weather set in. To bring order and cleanliness into this chaos seemed beyond human powers. Colonel Hunter quickly grasped the fact that the first need was to break the lines of infection between the troops and the rest of the country. To effect this, three principal steps were taken. First, quarantine stations were established behind the lines; second, notice was given that all railway communication would be suspended for fifteen days; and third, all leave from the army was stopped, and all soldiers on leave were immediately recalled, so that there might be no danger of reinfecting the railway after the disinfection, which was to be carried out during the stoppage. The problem of typhus was comparatively simple, as that disease is spread by lice. Wholesale disinfection and cleansing were carried out. Wine barrels were fitted up as disinfectors and sent broadcast through the towns and villages. All the hospitals were thoroughly disinfected, and more beds and accommodation were provided as soon as possible. Notification of disease was enforced, and infectious patients were removed from their homes to hospitals, their houses being thoroughly cleansed, and their other inhabitants kept in isolation for fourteen days. Finally, it was laid down that no infectious patients should be discharged from hospital in less than four weeks. The sanitary staff went from place to place in a train specially fitted up with all necessary appliances, and containing sleeping accommodation for all on board. Inoculation was largely resorted to, especially against cholera, which always loomed ahead as the last and worst possibility when the other plagues were exhausted. As the British mission foresaw, the conditions became worse before they began to improve, but when they did, the change was rapid beyond expectation. April 5 there were 8,198 cases of typhus in hospital; April 18, only 948. In the same period relapsing fever had declined from 7,693 to 4,861, and typhoid from 1,443 to 1,126.

A Physician's Fear of Premature Cremation

The fear of premature burial, though not widespread, is well known, and a society for the prevention of this contingency exists. The will of a physician, Dr. A. W. Orwin, at one time physician to the Central London Throat, Nose and Ear Hospital, displays a similar fear with regard to cremation, and the precautions which he directed to be taken are most elaborate: that "until it was ascertained that he was in fact dead, his nose and mouth were not to be covered nor his body confined in any shell or coffin; that on his apparent death his body should be kept in a well-warmed bed for thirty-six hours and then placed in a warm room, with the windows partially opened, and watched for twelve days and nights or until definite signs of decomposition have set in. During this period, the tests given in a pamphlet by Sir Benjamin Ward Richardson, 'The Signs and Proof of Death,' were to be applied, and a bell was to be attached to his wrist. When decomposition should have set in, a surgeon was to sever completely the spinal cord high up in the body, which was then to be cremated."

BERLIN LETTER

Berlin, May 18, 1915.

Personal

Prof. Heinrich Fritsch died, May 14, at Hamburg, aged 71. He studied under Olshausen, took his medical degree at Halle, was called to Breslau in 1882 as director of the maternity, and in 1893 became professor of obstetrics at the University of Bonn and director of the university clinic for women. Among his various important contributions to obstetrics and gynecology are his studies of the displacements of the uterus and of the pathology of puerperal fever. His larger works include "Diseases of Women," "Obstetric Operations" and "Obstetrics from the Forensic Standpoint," some of which have passed through many editions. His last work was on "Therapeutic Technic in Gynecology" in the "Manual of Therapeutic Technic" published by Professor Schwalbe.

The medical faculty of the University of Heidelberg has awarded this year the Kussmaul medal and the money prize from the Kussmaul endowment to the surgeon, Professor Braun of Zwickau.

The War

VENEREAL DISEASES

As history has shown, there has always been a great increase in venereal diseases along with all wars, and it was evident to all that in the present war, also, the combating of venereal diseases would be one of the most important hygienic problems presented. Soon after the opening of the war, there was a lively discussion on the subject in medical literature. The national preventive organizations—in Germany the Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten—were among the first to call attention to the immense import of the whole matter and to insist on enlightenment and warning and to urge energetic measures for protection and prophylaxis. When nine months of the war had passed, April 18, the board of the German Prophylactic Society held a meeting in which was discussed what has been accomplished to date and what is still to be done in the future. It was the general conclusion that the measures for enlightenment now in vogue on different sides must be vigorously continued. The distribution of enlightening circulars must be continued, especially the one issued by this society in an edition of two millions, and its other warning publications must be widely distributed. In addition to these, the short warning circular which has been published in an edition of 5,000,000 copies by the organized trade unions and other organizations of working men should be distributed. The latter circular was prepared at the instigation of the national insurance societies, and warns against the dangers of venereal diseases.

Of all measures, however, emphatic warning by word of mouth of the dangers of illicit intercourse was extolled as the most effectual. Particularly valuable for this is an outline prepared by Professor Uhlenhuth, consulting hygienist for the seventh army corps, to be used with a small atlas, for instructing the men when they are undergoing medical inspection. In the home zone, every new body of recruits should be instructed in the same way. In the barracks and hospitals, warning placards should be hung up; placards of this kind are supplied free of charge by the society. It was further emphasized as urgently necessary to enlighten the women in the home zone who would be exposed to danger, and to impress on them the necessity for seeking medical care at the first suspicion of infection. The proposal was also made to publish suitable articles from time to time in the trade and insurance journals, and that the Krankenkassen themselves should arrange for enlightening lectures and gatherings for talks on this subject for their insured members. It was further urged that the treatment of soldiers with venereal disease should be carried on in special wards. Each army corps should have a consulting venereologist—at least as an expert adviser for the consulting hygienist.

The most difficult phase of the problem is, of course, prostitution. As it is impossible to realize anything like complete sanitation of prostitution, an attempt should be made to detain under lock and key (*festhalten*), until peace is declared, the numerous Belgian and French prostitutes, if they cannot all be deported (*wenn man sie nicht abschieben kann*). Where this is not practicable, every measure for supervision should be applied under the control of German specialist physicians. The most important protecting means in the fight against prostitution are undoubtedly personal prophylactics. No prudery should be allowed to prevail here. Provision must be made to facilitate in every way the furnishing to the troops of prevention means; under all circumstances it must be required that after illicit intercourse a prophylactic protecting treatment must be applied. No soldier should be given a furlough without a previous medical examination, and furloughs should be refused to those with venereal disease. All these measures—so far as military conditions permit—must apply to the younger officers as well as to the men.

Of course these prophylactic and therapeutic measures should not be regarded as sufficient in themselves. Everything should be eliminated that increases the lure to extramatrimonial sexual intercourse. The German society proposes the following additional measures: (*a*) economic and social provision for the unemployed girls and women in the home zone and in the regions where the army is stationed; (*b*) the closest supervision of private quarters and their restriction to the utmost; (*c*) restriction of evening leave of absence; (*d*) restriction of alcohol, and an ample supply of nonalcoholic beverages; (*e*) exclusion of women from employment as waitresses in saloons or from admittance to them and similar places; (*f*) shortening of the hours saloons are allowed to be open; (*g*) provision of reading rooms, writing rooms and gathering places for the soldiers, and finally, (*h*) the prevention of quacks treating venereal diseases or advertising their services in any way.

A long discussion was devoted to ways and means to avert extensive spread of venereal diseases through the families after peace is declared. As experience has shown, toward the end of a war, when truce is declared, the venereal diseases become much more prevalent. All the authorities are convinced that when this time arrives all the prophylactic measures will have to be enforced with especial strictness. When peace is declared, all who have been treated for venereal disease during the war must be examined anew, and those still capable of infecting others should be retained in the region occupied by the army, in the reserve garrison, or at work otherwise, until they are cured. These measures should apply not only to the active soldiers but also to all other men connected with the army, railroad employees, postmen, bands of workmen, etc.

A number of the officials of the society declared it practically impossible to carry out still another measure suggested—although in itself extremely desirable—namely, that all those who have taken part in the war should be examined for gonorrhea and syphilis (including an examination of the blood) before they are dismissed to return home. Those who are not quite cured but no longer capable of infecting others should have opportunity for treatment offered them at once after their return home. The officials of the state insurance organizations have announced that they will provide means for the latter purpose on a large scale. The plan is to have dispensaries like those which have been doing good service at Hamburg since January, 1914, also organized by insurance officials.

The question was raised by the legal members of the board whether it would not conflict with professional secrecy to have the names of those still requiring treatment handed over to the insurance companies. This objection was met, however, by the provision in the German law on the subject, that it does not conflict with professional secrecy to pass the name from one official organization to another.

PARIS LETTER

Paris, May 27, 1915.

The War

FROZEN MEATS FOR THE ARMY

The provisioning of the army has considerably increased the consumption of butchers' meat. This increase amounts to about 400,000 tons per year or about 1,200,000 head of cattle. Our supplies of animals for slaughter are consequently being rapidly reduced and there is reason to fear that there will be insufficient production of meat animals for four or five years after the hostilities. As it is easy to see that the purchase of frozen meats is going to be continually more and more difficult, the Chamber of Deputies has just voted to authorize the minister of war to obtain for the use of the army annually 120,000 tons of refrigerated meat from our colonies or from foreign countries. The minister of war will be able to apply to the uses of the civil population all the meat which is not used for the troops. It is intended to buy frozen meats, which can better stand the delays and other hazards of transportation without risk of deterioration and which are better suited for the use of the army than meats which are simply refrigerated. There are facilities for cold storage in certain of our ports, amounting to 5,000 tons at Marseilles, 1,500 tons at Bordeaux, 4,000 at Havre; such facilities also exist in some of our other cities, as 5,000 tons at Paris, 2,000 at Dijon, 300 at Lyons and 250 at Nice. There are 800 refrigerating cars for use in transportation into the interior.

During the discussion of the bill, a deputy, M. Laurent Bougère, drew attention to the fact that, in the opinion of many physicians who have been at the front, the daily ration of 500 gm. of meat per man is excessive during the summer and ought to be partially replaced by vegetables. The ministers of agriculture replied that the meat ration has been reduced to 400 gm. for the troops of the second line but maintained at 500 gm. for those of the first line so that the average ration of the army is about 450 gm. Endeavors are being made to supply as large a quantity as possible of fresh vegetables at the front.

So far as refrigerated meats are concerned, it has sometimes happened that the cold storage houses have offered for consumption meats which were not all they should be. It is therefore of interest to know the precautions which the government has taken against this contingency. The director of the commissary at the war department has informed the budget commission that there are already and will be more facilities for the inspection of the sanitary condition of these meats, not only at the ports where they are landed and where they may be rejected if they are not altogether satisfactory, but also in the factories, where veterinaries are to have the right of examining the animals at the slaughter houses and also of inspecting the processes of manufacturing.

PREVENTION OF DECUBITUS IN TRAUMATISMS OF THE SPINAL CORD CAUSED BY WOUNDS OF WAR

At a recent session of the Académie de médecine, Dr. Pierre Marie, professor of pathologic anatomy at the Faculté de médecine de Paris, and Dr. Gustav Roussy, agrégé in the same subject at the same school, read an interesting paper on this topic. They believe that the long admitted theory that bedsores are the result of a trophic cutaneous trouble directly produced by the lesion of the nervous center is false. In reality the causes of decubitus consist of the following: (1) compression, indefinitely prolonged, of the projecting parts of the body, as the sacrum, heels or elbows, against the surfaces of the bed; (2) infection produced in the skin thus altered by prolonged and repeated contact with urine and feces. To prevent these lesions, these two causes must be eliminated. The position of these patients should therefore be changed every hour during the day and every two hours during the night. Also as soon as such wounded patients are soiled by their dejecta they should be immediately washed, powdered and placed on dry linen.

INDIRECT INTRA-OCULAR LESIONS BY FIREARMS

At the last session of the Académie de médecine, Dr. Lagrange, professor of clinical ophthalmology at the Faculté de médecine de Bordeaux, called attention to the fact that firearms may cause serious ocular lesions without touching the eyes. Bullets traversing the face or fragments of shell injuring the skull sometimes cause serious conditions in an eye apparently intact. Similar results may follow the displacement of the air caused by the explosion of a large projectile. In such cases there is a more or less accentuated laceration of the uveal tract. Such intra-ocular lesions resulting from concussion of the tissues or from simple displacement of the air make it possible to understand the existence of lesions of the nervous centers (spinal cord or brain) and of the peripheral nerves by projectiles which do not come into immediate contact with them or by the vibration of the air caused by the explosion of a large shell. The ophthalmoscope makes it possible to see in the ocular membranes lesions which are invisible in the nervous centers and trunks.

TREATMENT FOR TUBERCULOUS SOLDIERS

The Conseil général du département de la Seine-Inférieure has decided to found a departmental sanatorium for the treatment of soldiers who have contracted tuberculosis while serving under the flag.

Measures Against Alcoholism

The minister of justice has just addressed to the public prosecutors a circular with regard to the recent law forbidding the manufacture, the sale and the circulation of absinthe and similar liquors. He requests them to aid by all measures in their power in the campaign undertaken by the government against alcoholism by prosecuting all infractions of the law of Jan. 23, 1873, against drunkenness. This law provides punishment, not only for individuals found drunken in public places, but also for those who sell drinks to manifestly drunken customers or who serve alcoholic liquors to children under 16. The penalties are moderate for the first offense, but increase proportionately with repetition, reaching imprisonment for two months, prohibition of the consumption of drinks on the premises or even closing up the establishment. These penalties are so rarely applied that they have almost been forgotten. It is necessary that repeated offenders should be carefully distinguished and that all penalties called for by the nature of the case should be rigorously applied.

Jubilee of Professor Metchnikoff

A celebration which, owing to present circumstances, has taken on a personal character, was recently held at the Pasteur Institute; the occasion was the seventieth birthday anniversary of Prof. Elie Metchnikoff. Prof. Gaston Darboux and Dr. Roux reviewed the career and the works of the Russian scientist, the first on behalf of the Académie des sciences and the second on behalf of the Pasteur Institute. Professor Metchnikoff gave the audience an interesting talk on the prolongation of life.

Marriages

Fairfax Hall, M.D., New Rochelle, N. Y., to Miss Eleanor Reyburn Remy of Evanston, Ill., at Port Chester, N. Y., May 29.

Harvey Ward Van Allen, M.D., Springfield, Mass., to Miss Anna Marion Dostal, at Schenectady, N. Y., June 7.

Max J. Colton, health officer of Cumberland, Md., to Miss Florence E. Gibbs of East Orange, N. J., June 7.

Karl Miller Wilson, M.D., Baltimore, to Miss Mildred Hallowell Bentley of Sandy Springs, Md., June 1.

John A. Ascher, M.D., Sparks, Nev., to Miss Agnes C. McKinnon of Spokane, Wash., at Reno, June 2.

Cranford Haywood Douthirt, M.D., Roaring River, N. C., to Miss Lydia I. Reid of Towson, Md., June 2.

Walter M. Droll, M.D., Alta Vista, Kan., to Miss Hannah Amelia Netzig of Manhattan, Kan., May 26.

Todd J. Wilson, M.D., Negaunee, Mich., to Miss Lorena May Lockhart of Barrington, Ill., May 31.

Robert Marshall White, M.D., to Miss Mary Tivnan, both of Dorchester, Boston, June 1.

Maurice R. Perlstein, M.D., to Miss Rose Tratner, both of Chicago, June 2.

Deaths

Samuel Baldwin Ward, M.D. Georgetown University, Washington, D. C., 1864; assistant surgeon, United States Volunteers, during the Civil War; a Fellow of the American Medical Association; formerly president of the Medical Society of the State of New York and Albany County Medical Society; a member of the Association of American Physicians; once professor of anatomy and surgery in the Woman's Medical College of the New York Infirmary; for many years dean and professor of the theory and practice of medicine in Albany Medical College; attending physician to the Albany Hospital and consulting physician to the South End Dispensary; secretary and treasurer of the executive committee of the state normal college, Albany, and president of the board of trustees of the Dudley Observatory; died at his home in Albany, June 3, aged 73.

Frank Neall Robinson, M.D. University of Pennsylvania, Philadelphia, 1895; a Fellow of the American Medical Association; a member of the American Climatological Association and the National Association for the Study and Prevention of Tuberculosis; formerly of Camden, N. J., and a member of the city council for two terms; who went to California ten years ago on account of ill health and was for two years assistant superintendent of the Pottenger Sanatorium for Tuberculosis in Monrovia; died at his home in that place, May 25, aged 40.

John S. Mack, M.D. University of Pennsylvania, Philadelphia, 1892; a practitioner and druggist of Slatington, Pa.; assistant surgeon of the Fourth Pennsylvania Infantry, United States Volunteers, during the Spanish-American War, with service in Cuba; half owner of the Crescent Slate Company and its secretary and treasurer; committeeman, school director and treasurer of the school board for two years; a member of the borough council and in 1909, burgess; died in the Hotel McClodes, Buffalo, May 30, from heart disease, aged 45.

Spiro F. Sargentich, M.D. College of Physicians and Surgeons, San Francisco, 1902; formerly a Fellow of the American Medical Association, and a practitioner of Portland, Ore., and Tacoma, Wash.; but more recently a resident of Seattle; who went to Serbia a few months ago to assist in the fight against typhus fever in his native country; died recently from that disease, aged 41.

Gustavus Freedom Walker, M.D. Vermont Medical College, Rutland, 1888; of Boston; a veteran of the Civil War and surgeon-lieutenant of the Ancient and Honorable Artillery Company of Boston and medical director for the Massachusetts Department of the Grand Army of the Republic; died at his home in Boston, June 1, from cerebral hemorrhage, aged 71.

Walter J. Mitchell, M.D. Medical College of Ohio, Cincinnati, 1884; a member of the Indiana State Medical Association; formerly of North Vernon, Ind., and clerk of the Jennings County Circuit Court; died in Indianapolis, May 31, from the effects of poison self-administered, it is believed, with suicidal intent, while of unsound mind, aged 52.

Daniel R. McCormick, M.D. Jefferson Medical College, 1882; a Fellow of the American Medical Association; medical director of the Lancaster (Pa.) General Hospital; a member of the Lancaster school board and of the Board of Health of Lancaster County; died at his home in Lancaster, May 31, from cerebral hemorrhage, aged 58.

James Fulton McCutchan, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1868; a member of the Illinois State Medical Society and president of the Warren County Medical Society; a veteran of the Civil War, and one of the oldest practitioners of Warren County; died suddenly at his home in Alexis, Ill., May 28, aged 81.

Robert Clement French, M.D. Tulane University, New Orleans, 1906; of Natchez, Miss.; aged 35; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; oculist and aurist to the Natchez Hospital; died in the Touro Infirmary, New Orleans, May 30, after a surgical operation.

Harry H. Sherk, M.D. Jefferson Medical College, 1886; a Fellow of the American Medical Association; a member of the Camden (N. J.) Board of Health, and a practitioner and ophthalmologist of Camden for thirty-five years; died June 1, in a private hospital at Chestnut Hill, Pa., from cerebral hemorrhage, aged 55.

Herbert Lucian Grant, M.D. Tulane University, New Orleans, 1901; of El Campo, Texas; a member of the State Medical Association of Texas; died in the De George Hotel, Houston, Texas, June 2, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent, aged 38.

James William Washington Culpepper, M.D. Chattanooga (Tenn.) Medical College, 1904; of Cullman, Ala.; a member of the Medical Association of the State of Alabama; aged 38; died in a hospital in Birmingham, Ala., May 27, from injuries sustained in an automobile accident two days before.

Morris Kush, M.D. Cornell University, New York City, 1913; an intern in Mount Sinai Hospital, New York City; aged 27; a member of the medical scholarship society of Alpha Omega Alpha; was accidentally drowned during a heavy windstorm, May 26, while canoeing on Lake George.

John Milton Shields, M.D. Albany (N. Y.) Medical College, 1868; formerly a Fellow of the American Medical Association; for many years a medical missionary of the Presbyterian Church in New Mexico; died at his home in Jemez Springs, N. M., May 23, aged 73.

Frank Eugene Baker, M.D. Long Island College Hospital, Brooklyn, 1891; formerly a practitioner of Florida, but more recently a resident of Woodford, Vt.; died at the home of his mother in North Adams, Mass., May 8, from acute prostatitis, aged 45.

Gustav Hahn, M.D. John A. Creighton Medical College, Omaha, 1903; a Fellow of the American Medical Association; a well-known practitioner of Omaha; died at his home in that city five weeks after an operation for cholelithiasis, aged 52.

Samuel Miner Glenn, M.D. Western Reserve University, Cleveland, 1910; formerly a Fellow of the American Medical Association; a member of the Ohio State Medical Association; died at his home in Warren, Ohio, May 30, aged 36.

Walter Carl Smiley, M.D. University of Southern California, Los Angeles, 1906; of Banning, Calif.; a Fellow of the American Medical Association; died at the home of his parents in Pasadena, Calif., May 30, from nephritis, aged 35.

T. Edwin Martin, M.D. Northwestern University Medical School, Chicago, 1904; a practitioner and druggist of Homedale, Ida.; formerly editor of the Homedale *Press*; died May 29, it is believed from an overdose of morphin, aged 32.

James M. Guess, M.D. Medical College of Georgia, Augusta, 1878; formerly of Centerville, Ga., but for several years a resident of Stone Mountain, Ga.; died in a hospital near Atlanta, May 26, from cerebral hemorrhage, aged 61.

Frederick Arthur Ruickoldt, M.D. University of Jena, Germany, 1865; a Fellow of the American Medical Association and founder of the New Haven Medical Association; died at his home in New Haven, Conn., June 2, aged 75.

John D. Miller, M.D. Louisville (Ky.) Medical College, 1903; of Batesville, Miss.; a member of the Mississippi State Medical Society; was instantly killed on Belmont levee by the overturning of his automobile, June 1, aged 36.

John A. Gale, M.D. Medical College of Indiana, Indianapolis, 1875; formerly of Denver, and local surgeon to the Colorado and Southern Railway; a resident of Los Angeles; died in Whittier, Calif., May 1.

William Wakeham, M.D. McGill University, Montreal, 1866; for thirty-six years fishery inspector for the lower St. Lawrence and gulf, and local justice of the peace; died at his home in Gaspé, Que., May 20, aged 70.

Samuel Cole, M.D. Rush Medical College, 1865; New York University, New York City, 1866; a Fellow of the American Medical Association; died at his home in Chicago, June 5, from heart disease, aged 70.

William Carey Allen, M.D. Hahnemann Medical College, Philadelphia, 1883; for twenty-seven years a practitioner of Colorado Springs, Colo.; died at his home in that city, June 2, from heart disease, aged 61.

Clayton M. Stewart, M.D. Missouri Medical College, St. Louis, 1857; Jefferson Medical College, 1860; for many years a practitioner of Scott County, Ill.; died at his home in Jacksonville, Ill., April 30, aged 83.

Edward Richard Johnstone, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1892; for several years a practitioner of San Luis Obispo County, Calif.; died at his home in Morro, Calif., May 20, aged 51.

Eliza J. Zimmerman Burnside, M D. Woman's Medical College of Pennsylvania, Philadelphia, 1860; for many years a practitioner of Philadelphia; died at the home of her sister in Tiffon, Ohio, May 28, aged 83.

Theodore F. Meisenheimer, M.D. New York University, New York City, 1880; a member of the Medical Society of the State of North Carolina; died at his home in Morven, May 27, aged about 63.

William Himmelsbach, M.D. Cooper Medical College, San Francisco, 1898; a member of the Medical Society of the State of California; of Watsonville, Calif.; died at Oakland, Calif., May 23, aged 52.

James Francis Hackett, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1889; of Kellogg, Iowa; died at the home of his daughter in Maxwell, Iowa, May 9, aged 56.

Benjamin Frank Zerbe, M.D. Jefferson Medical College, 1878; formerly prothonotary of Lebanon County, Pa.; died at his home in Schaefferstown, Pa., about May 31, from acute meningitis, aged 61.

Addison Henry Dey, M.D. University of Pennsylvania, Philadelphia, 1881; for many years a practitioner of Trenton, N. J.; died at his home in that city, May 16, from cerebral hemorrhage, aged 58.

William Thomas Bogie, M.D. Bellevue Hospital Medical College, 1878; formerly a member of the Oklahoma State Medical Association; died at his home in Ardmore, Okla., May 29, aged 59.

George V. Hale, M.D. Jefferson Medical College, 1883; also a druggist; formerly local surgeon of the Southern Pacific System at Burbank, Calif.; died in Los Angeles, April 24, aged 61.

Louis Frederick Bischof, M.D. New York University, New York City, 1885; also a graduate of the New York College of Pharmacy; died at his home in New York City, May 23, aged 51.

Joseph S. Stanley (license, Mississippi), a Confederate veteran and a practitioner of Macon, Miss., for forty years; died suddenly in Valdosta, Ga., May 20, from heart disease, aged 68.

Robert Newton Fryer, M.D. University of Nashville, Tenn., 1870; for about sixty years a practitioner; died at his home in Newbern, Tenn., April 7, from senile debility, aged 85.

Charles Hiram Colegrove, M.D. Detroit Homeopathic Medical College, 1873; a veteran of the Civil War; died at his home in Willimantic, Conn., May 29, aged 73.

Daniel Joseph Mehegan, M.D. Harvard Medical School, 1894; a member of the Massachusetts Medical Society; died at his home in Taunton, Mass., April 21, aged 46.

J. Elizabeth Tompkins, M.D. Harvey Medical College, Chicago, 1896; for twenty-five years a practitioner; died at her home in Chicago, May 26, aged 70.

Francis Joseph Bicker, M.D. Jefferson Medical College, 1890; a practitioner and druggist of South Camden, N. J.; died at his home, May 24, aged 58.

William Ernest De La Perriere, M.D. Atlanta, Ga., College of Physicians and Surgeons, 1907; died at his home in Hoschton, Ga., May 22, aged 30.

John Franklin Marshall, M.D. New York University, New York City, 1890; died at his home in Brooklyn, May 31, from pneumonia, aged 50.

Henry Howard Townes, M.D. Medical College of Georgia, Augusta, 1896; of Poverty Hill, S. C.; died in Highlands, N. C., May 24, aged 45.

William Johnston DeWitt Sproule, M.D. University of Toronto, Ont., 1906; died at his home in Harlem, Mont., about May 20, aged 32.

Directus DeForest Cole, M.D. Hahnemann Medical College, Chicago, 1881; died at his home in Newark, N. Y., May 24, aged 60.

Eddie Wise Jenkins, M.D. Bellevue Hospital Medical College, 1883; of Farmdale, Fla.; died in Columbus, Ga., about May 21.

James A. Clementson, M.D. Hahnemann Medical College, Chicago, 1895; died at his home in Lancaster, Wis., May 19, aged 42.

Rufus N. Younger, M.D. University of Louisville, Ky., 1888; died at his home in Whitesboro, Tex., May 19, aged 61.

William A. T. Keeler, M.D. Jefferson Medical College, 1873; died at his home in Stroudsburg, Pa., May 24, aged 81.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

LOUISIANA GOES ON RECORD

What One Southern State Thinks of Fraudulent "Patent Medicines"

Readers of THE JOURNAL will remember that Dr. Oscar Dowling, president of the State Board of Health of Louisiana, and one of the Trustees of the American Medical Association, has been sued by the Chattanooga Medicine Company. The suit was based on the fact that Dr. Dowling, in his official capacity as State Health Officer, exhibited in the Louisiana "State Health Train," among other educational placards, one exposing Wine of Cardui. After the suit was brought, the State Board of Health of Louisiana officially upheld Dr. Dowling and also declared Wine of Cardui a fraud.

On June 14, the Louisiana General Assembly, in special session at Baton Rouge, passed the following, known as Senate Concurrent Resolution Number Six:

> "WHEREAS, Dr. Oscar Dowling, President of the Louisiana State Board of Health and, ex-officio, Commissioner of Food and Drugs, in his administration of these departments, has demonstrated the highest regard for his oath of office and courage in the case of public health against mercernary interests which have attacked the work of the Louisiana State Board of Health and discredited its efforts to protect the public; therefore be it
>
> "*Resolved,* By the Senate of the State of Louisiana, the House concurring, we approve the campaign of the Louisiana State Board of Health as conducted by Dr. Oscar Dowling, President, to rid the State of Louisiana of the pernicious patent nostrums so widely advertised and sold under misleading and fraudulent pretences as to curative properties.
>
> "*Resolved, further,* That we commend the action of the 'Louisiana Press Association' for its endorsement of the Louisiana State Board of Health in its effort to control the patent medicine evil, and Dr. Oscar Dowling, President, for his defense of the medical profession, the American Medical Association and the Louisiana State Board of Health at the Twenty-Sixth Annual Session of the Louisiana Press Association in Monroe, June 10, 1915, against the attack made by one of the speakers from a neighboring state who appeared on the program.
>
> "THOMAS C. BARRET, Lieutenant-Governor and President of the Senate;
>
> "L. E. THOMAS, Speaker of the House of Representatives;
>
> "L. E. HALL, Governor of the State of Louisiana."

It should be said that the Louisiana Press Association, which was recently in session at Monroe, La., had already gone on record against questionable advertising, especially as it refers to "patent medicines" and quackery. At its annual convention held last week this association reaffirmed its position on the question of fraudulent advertising and requested the president of the State Board of Health to furnish its members with a list of concerns that had been placed under ban by the board.

At the Louisiana Press Association's convention at Monroe a paper was read by one James A. Metcalf. This individual championed the cause of "patent medicines," by the usual method: vilifying the medical profession in general and the American Medical Association and the Editor of THE JOURNAL in particular.

This attempt on the part of the "patent medicine" interests to influence the press of Louisiana acted as a boomerang which was thus described by the Monroe (La.) *News-Star* in reporting the incident:

> ". . . the speaker failed utterly to help the cause of the patent medicine manufacturer with the Louisiana newspaper men who showed their feelings later by unanimously and loudly adopting a resolution endorsing the fight of the State Board on patent medicine frauds and requesting Dr. Dowling to furnish the press of the state a list of these nostrums so they may be banished from the advertising columns."

ARTICLE REFUSED RECOGNITION

Report of the Council on Pharmacy and Chemistry

Below appears an abstract of the Council's action on an article refused recognition which was not deemed of sufficient importance to require a lengthy report.

Iodex

Iodex is manufactured by Menley and James, Ltd., New York. It is advertised as

> ". . . an embodiment of vaporized iodin in an organic base, reduced and standardized at 5 per cent. by incorporation with a refined petroleum product."

The advertising conveys the impression that the effects of free iodin are to be obtained from the preparation; it is said to contain "5 per cent. Therapeutically Free Iodine," and to do

> ". . . everything the doctor expects of FREE iodin employed by inunction, without one physical or therapeutic drawback."

The statements are also made that the preparation "neither stains, irritates, blisters or cracks the skin," and that "thirty minutes after inunction iodin can be found in the urine."

The following report of an examination made by the Chemical Laboratory of the American Medical Association has been submitted to the Council:

> "Iodex is dark green, practically black. The green color is apparent when the ointment is rubbed on the skin, but disappears on continued rubbing. This nonstaining property is explained by the results of a test for free iodin, made on five specimens, four of which yielded only minute traces of free iodin, while the fifth yielded none. Of course, the statements that Iodex is an 'Effective Free Iodin Application Without Drawbacks' and also a means of 'Really Efficient External Iodine Therapy Without Stain or Irritation' contradict each other. Free iodin cannot be present in a sufficient quantity to be therapeutically efficient in any application which does not stain or irritate the skin.
>
> "The total iodin content of the five specimens was found to be 2.63 per cent.—a little over one-half of the content claimed.
>
> "Absorption and excretion experiments were performed to test the claim that 'thirty minutes after inunction iodin can be found in the urine.' In several subjects, from 1 to 2 gm. of Iodex was rubbed on the skin of the forearms, and the urine, for periods varying from seven to seventy-two hours, was collected and tested for iodin. In all of the tests the results were negative."

Iodex is advertised as beneficial in muscular soreness, sprains, sciatica, neuritis, chronic rheumatism, enlarged glands, orchitis, epididymitis, gout, burns and dermatomycoses. It is also said to be "Indicated in Glandular Enlargements, Inflammatory Conditions, Various Joint Diseases, Rheumatism, Skin Diseases, Chilblains, etc., etc."

To sum up:

1. As shown in the foregoing laboratory report, the composition is incorrectly stated, for the actual iodin content is only about half of that claimed.
2. *It is not true that the action of Iodex is essentially that of free iodin, which is the impression conveyed by the advertising.*
3. The assertion made in the advertising, that iodin may be found in the urine shortly after Iodex has been rubbed on the skin, has been experimentally disproved.

In view of these findings, the Council voted that Iodex be refused recognition for conflict with Rules 1, 4 and 6.

Modes of Infection in Tuberculosis.—Infection in tuberculosis results from close and perhaps prolonged association with some individual suffering from the disease. The nearness to the individual is not important, although droplet infection from forceful coughing is more apt to occur if contact is close; but the mere occupancy of a room previously used by a consumptive who has been careless in the disposal of his sputum is sufficient. Heat, poor ventilation and lack of sunlight increase the liability of infection, dust also acting deleteriously. Under ordinary conditions dishes are probably not responsible for the spread of the disease, but blankets and soiled or imperfectly cleaned linen may be an important source of infection.—Ernest A. Sweet, *Public Health Reports*, April 9, 1915.

Correspondence

Ben Franklin's Views

To the Editor:—The extract from the "Autobiography of Benjamin Franklin" (Miscellany, The Journal, June 5, 1915, p. 1933) gives a mistaken idea of the habits of our first American philosopher as regards his use of alcohol. Early in life as an impecunious printer's devil he may have been as abstemious as is asserted, but with the access of fortune and fame he certainly indulged more freely in "that muddling liquor" which he condemns. This is only an example of the not uncommon failing which he shared with less famous mortals in not always squaring his practice with his preaching.

Sir George Trevelyan, in his "American Revolution," says:

> "But Franklin was not long left without a colleague worthy of himself, and of the nation which he represented. The French treaty had been signed in February, 1778; and by the second week of April, John Adams was already supping with him 'on cheese and beer' in his suburban residence at Passy."

Fortunately the growing habit of abstinence from alcohol in the teachings of pathology and modern physiology rests on a surer foundation than is afforded in the precepts or practice of Poor Richard, whose homely and parsimonious maxims are today as archaic as the author's lightning rods or his old fur cap. Franklin's early objection to alcoholic beverages was chiefly on the ground of their expensiveness, and in an age of high cost of living and reckless expenditure this is a poor argument, which would apply with equal or greater force to the use of bottled spring water.

We are sufficiently grown up as a nation to hear with composure the truth about our early history, and it cannot harm the secure fame of Franklin to know that he was fond of both wine and women, a fact which he himself took no pains to conceal during his long and industrious lifetime. It is not recorded that his convivial habits or mulierosity ever impaired to the slightest degree his popularity or efficiency as a special ambassador to the gay court of Louis XVI during a dark and critical period of our country's history. In these stirring days of history in the making it is well to remember that not all of our Revolutionary heroes and patriots were impeccable saints, our school histories to the contrary notwithstanding. One of Franklin's bastard sons bore his name and was appointed a royal governor of New Jersey when that state was a crown colony. He was knighted by George III and remained a Tory partisan all his life.

Benjamin Franklin was a notorious sufferer from gout, and in his humorous dialogue under date of midnight, Oct. 22, 1780, occurs the following frank admission that he was far from being a total abstainer:

"*Franklin.* Eh! oh! eh! What have I done to merit these cruel sufferings?

"*Gout.* Many things: you have ate and drunk too freely and too much indulged those legs of yours in their indolence."

For physicians interested in the treatment of tuberculosis, it is of interest to recall that Franklin had knowledge of the value of fresh air methods equal to the most advanced views current today. He says:

> "It is recorded of Methuselah, who, being the longest liver, may be supposed to have best preserved his health, that he slept always in the open air; for when he had lived five hundred years an angel said to him: 'Arise, Methusaleh, and build thee an house, for thou shalt live yet five hundred years longer.' But Methuselah answered and said: 'If I am to live but five hundred years longer, it is not worth while to build me an house; I will sleep in the air, as I have been used to do.' Physicians, after having for ages contended that the sick should not be indulged with fresh air, have at length discovered that it may do them good. It is therefore to be hoped that they may in time discover likewise that it is not harmful to those who are in health, and that we may then be cured of the aerophobia that at present distresses weak minds, and makes them choose to be stifled and

poisoned rather than leave open the window of a bedchamber or put down the glass of a coach."

John Adams, who attained the venerable age of 91, was never converted by the doctrine of his eminent colleague whom he long survived, and he was always convinced that Franklin, who died at the age of 84, was prematurely cut off by his foolish habit of exposing himself to drafts of air.

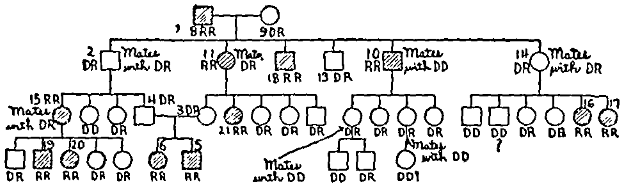
Henry L. Shively, M.D., New York.

Polydactylism as a Hereditary Character

To the Editor:—I have been vastly amused but not convinced by the easy grace with which Dr. W. R. Tymms (The Journal, June 5, 1915, p. 1931) surmounts the difficulties which I imagined I encountered in proving polydactylism a recessive hereditary character.

In the first place, as regards the question of an imperfect dominance of either the normal or the polydactyl condition, allow me to point out that such a conclusion was reached some time since by Bateson and Castle, whose names *are most intimately connected with experimentation to determine* the facts of mendelian heredity, although they seem to feel that the *polydactyl* condition is the imperfect dominant.

It will be recalled that as an instance which might tend to prove polydactylism a recessive character, I suggested that 4 and 3, being offspring of polydactylous progenitors, could each very well be considered DR in composition and they, each contributing an R to 5 and 6, cause this pair to be RR and thus to present the recessive polydactyl character (referring to my chart as edited by Dr. Tymms), all other polydactylous members of the tree exhibiting the character because of the imperfect dominance of the normal five-fingered state. Now Dr. Tymms labels 8 as RR, which means that *both* of his parents must have borne this factor. Then 8 marries a woman 9 labeled, by him, as DR, meaning that she too bears the same polydactylous factor. And, as if there were some controlling destiny operative, 2, 11, 14 and 15 all *meet and mate with a DR each.*



Squares indicate males, circles, females. Shaded areas indicate affected persons (polydactyls).

If polydactylism is carried as a potential factor so generally, I submit that we must soon become a polydactylous race. Otherwise, it would appear that when a hurdle is encountered, the easiest way of getting by is simply to remove it.

Julian W. Brandeis, M.D., New York.

The Country Doctor

To the Editor:—It seems to me that both Dr. Flancher and Dr. Ames (The Journal, March 27, 1915, p. 1095; June 5, 1915, p. 1931) have missed the mark. The first requisite of either a country or a city physician is character; then comes ability. I will take off my hat to the physician who says he does not know, but who at the same time will work to find out. There is no question that the city physician who realizes his responsibilities can do better work with less effort than the country physician. Every man should realize his limitations. We all have them. Then he should not hesitate to call a better man, even if he is a city man. Thwarted ambitions act like poison in human nature, and a normal and temperate satisfaction of ambition is what keeps it sweet and sane. The clinics and hospitals in the city give an opportunity which we country fellows hunger for. We cannot all live in the city. Patients in the country are entitled to as good treatment as can be obtained anywhere. If we cannot give it, we should call in the man who can, no matter where he lives.

Henry C. Caldwell, M.D., St. Croix Falls, Wis.

The Tendency to Write Long Sentences

To the Editor:—I desire to call attention to what seems to be a growing evil in the matter of literary productions by physicians and others, although not a new one. It is a tendency to make long sentences which often require to be read two or three times before the meaning can be ascertained, consuming needlessly the time of the reader. In the last number of one American medical journal, for example, is an otherwise admirable paper in which this is the case. I experienced this in reading the paper, so that it took me twice as long to read it as it should have done.

An editorial reference to this tendency I think would be helpful to the reader, and do the author no harm. As I have said, this practice is not limited to the medical writer, but it is with him that we doctors are for the most part concerned.

James Tyson, M.D., Philadelphia.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE KRISTELLER TECHNIC

To the Editor:—In Dr. Baer's article on "Scopolamin-Morphin Treatment in Labor" (The Journal, May 22, 1915, p. 1723), under Case 9, he says: "Patient was delivered by Kristeller." What is Kristeller? I have searched all my obstetric literature and can find nothing.

J. M. Heyde, M.D., Loudonville, Ohio.

Answer.—The Kristeller technic is a method of expression of the fetus suitable for those cases in which labor is not progressing satisfactorily and in which an outlet forceps or more recently a dose of pituitary extract is usually employed.

The head should be in the vulva, and the abdomen must be thin and relaxed enough to permit the obstetrician's assistant to grasp the fundus efficiently. A light anesthesia may be used to facilitate this hold. The grip is on the fundus, the fingers of the two hands parallel behind and the thumbs in front. The expression should be carried out in one or two sustained efforts, preferably during a uterine contraction. The line of force should be exerted in the direction of the axis of the inlet, if necessary shifting the uterus to meet this requirement.

This method should not be undertaken unless the obstetrician feels assured of success. Such force, if applied at the placental site and unsuccessful, might result in premature detachment and death of the fetus. The uterus might likewise be seriously injured. If there is reason to suspect inflammatory involvement of the adnexa, the procedure should not be considered. The following is a reference to the original article of Kristeller: "Die Expressio Foetus; Neues Entbindungsverfahren unter Anwendung äusserer Handgriffe," *Monatschr. f. Geburtsh. u. Frauenkr.*, 1867, xxix, 337.

OUR NEUTRALITY QUESTIONED

To the Editor:—I was much amused at your neutrality being questioned because the letter "G" follows "F," when Dr. Heisen queried why the letter from your correspondent in Germany is placed to follow the letter from your correspondent in France, and he accused you of favoritism. (The Journal published Dr. Heisen's letter May 29, in Knocks and Boosts Department, page 22.)

I have noticed the tendency in The Journal to arrange all sequences alphabetically. In the Current Literature Department, in particular, I can always find, in their respective alphabetical positions, the domestic journals and the journals from England, from France, from Germany and Italy, with the Scandinavian journals always last. The alphabetical arrangement saves much time and labor in looking up things, but one discrepancy I have always wondered at, namely, that the Brazil and Argentine journals follow Italy.

A. M. J.

Answer.—*In case of the journals in foreign tongues, it has* been found more convenient for both readers and translators to arrange them by the languages—grouping the allied ones—rather than by the names of the countries. This makes no difference in the sequence English, French, German and Italian, but Brazil journals are in Portuguese and the Argentine in Spanish. With the Swedish are grouped the Danish and Norwegian. Persons who can read one of the languages in these groups usually can read all the others in the group.

THE HARRISON NARCOTIC LAW

To the Editor:—A habitué uses, on an average, 3 ounces of laudanum a week I write a prescription for this amount each week for him. Is it illegal for me to write "Sig.: Laudanum—Poison" as directions for the druggist to write on bottle, or should the directions be for a reduction of the dose on each prescription written for a habitué, regardless of the quantity the prescription calls for to comply with the Harrison law?

J. S. G.

Answer.—Treasury decision 2200, issued May 11, directs that where a physician, dentist or veterinarian prescribes any of the drugs covered by the law, in a quantity more than is apparently necessary to meet the immediate needs of a patient in the ordinary case, or where it is for the treatment of an addict or habitué to effect a cure, or for a patient suffering from an incurable or chronic disease, such physician, dentist or veterinary surgeon should indicate on the prescription the purpose for which the unusual quantity of drugs so prescribed is to be used. In cases of treatment of addicts, these prescriptions should show the good faith of the physician in the legitimate practice of his profession by a decreasing dosage or reduction of the quantity prescribed from time to time, while, on the other hand, in cases of chronic or incurable diseases, such prescriptions might show an increasing dosage or increasing quantity. In accordance with this ruling, prescriptions given to addicts should show a definite dosage decreasing from time to time.

LITERATURE ON PROSTATITIS

To the Editor:—Please publish a list of literature on acute and chronic prostatitis.

C. W. Davidson, M.D., Madisonville, La.

Answer.—The following is a list of articles on this subject:

Smith, E. O.: Pathology of the Prostate, The Journal, Dec. 6, 1913, p. 2035.
Young, H. H.: Rôle of Prostate and Seminal Vesicles in General Toxemias, The Journal, Sept. 13, 1913, p. 822.
McCrae, Thomas: Remote Effects of Lesions of Prostate and Deep Urethra, The Journal, Aug. 16, 1913, p. 477.
Hitchens, A. P., and Brown, C. P.: Bacteriology of Chronic Prostatitis, *Am. Jour. Pub. Health*, September, 1913.
Kremble, A.: Chronic Prostatitis, *Med. Rec.*, New York, May 16, 1914.
McKenna, C. M.: Device for Treatment of Prostatitis, *Illinois Med. Jour.*, April, 1914; abstr., The Journal, May 2, 1914, p. 1434.
Smith, Lucian, W.: Suprapubic Prostatectomy, with Special Reference to Drainage, The Journal, Nov. 7, 1914, p. 1667.
Potter, C.: New Perineal Board for Use in Perineal Prostatectomies and Genito-Urinary and Rectal Surgery, The Journal, Oct. 24, 1914, p. 1476
Thomas: Rôle of Functional Kidney Tests and Preoperative and Postoperative Prostatectomy Mortality, The Journal, Nov. 28, 1914, p. 1909.
Barnett, C. E.: Suprapubic Prostatectomy, The Journal, Nov. 26, 1914, p. 2273.

USE OF LIGHT IN THERAPY

To the Editor:—Where may I find some recent articles on the use of light in therapy, especially in reference to tuberculosis?

H. Cohn, M.D., Oak Forest, Ill.

Answer.—The following is a list of references to articles on this subject:

Kime, J. W.: Heliotherapy in Treatment of Tuberculosis, *Iowa State Med. Soc. Jour.*, April, 1915.
Hinsdale, G.: Surgical Tuberculosis and Its Treatment by Heliotherapy, *Brit. Jour. Tuberc.*, April, 1915.
Johansson, S.: Heliotherapy of Surgical Tuberculosis, *Hygiea*, 1915, lxxvi, No. 24; abstr., The Journal, March 6, 1915, p. 868.
Twichell, D. C.: Effect of Direct Rays of Sun on Experimental Tuberculosis, *New Mexico Med. Jour.*, January, 1915.
Kisch, E., and Grätz, H.: Tuberculous Fistula Cured by Exposure to Direct Sunlight, *Arch. f. klin. Chir.*, 1914, civ, No. 2; abstr., The Journal, June 6, 1914, p. 1850
Hüssy, A.: Sunlight Plus Mountain Climate in Treatment of Tuberculosis of Hand, *Beitr. z. klin. Chir.*, May, 1914; abstr., The Journal, Sept. 12, 1914, p. 977.
Von Schrötter, H.: Heliotherapy of Tuberculosis, *Med. Klin.*, Dec. 21, 1913.
Brinch, T.: Treatment of Internal Tuberculosis with Stored Light Rays, *Ugesk. f. Læger*, Nov. 27, 1913; abstr., The Journal, Jan. 10, 1914, p. 174.
Rollier, A.: La Cure de Soleil, Lausanne, Constant Tarin, 1914, cloth, pp. 217, with 147 illustrations, price, 20 francs.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, July 6. Chairman, Dr. W. H. Sanders, Montgomery.
Alaska: Juneau, July 6. Sec., Dr. Harry C. DeVighne, Juneau.
Arizona: Phoenix, July 6-7. Sec., Dr. John Wix Thomas, Phoenix.
Colorado: Denver, July 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
Connecticut: New Haven, July 13. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Eclectic: New Haven, July 13. Sec., Dr. T. S. Hodge, 19 Main St., Torrington; Homeopathic: New Haven, July 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.
District of Columbia: Washington, July 13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
Illinois: Chicago, June 24-26. Sec., Dr. C. St. Clair Drake, Springfield.
Indiana: Indianapolis, July 13-15. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.
Maine: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
Maryland: Baltimore, June 21. Sec., Dr. J. McP. Scott, Hagerstown.
Massachusetts: Boston, July 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
Missouri: St. Louis, June 21-23. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.
New Hampshire: Concord, July 6-7. Regent, Mr. H. C. Morrison, Concord.
New Jersey: Trenton, June 22-23. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.
New Mexico: Santa Fe, July 12. Sec., Dr. W. E. Kaser, East Las Vegas.
New York: Albany, Buffalo, New York and Syracuse, June 29-July 2. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.
North Dakota: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, Grand Forks.
Oklahoma: Oklahoma City, July 13. Sec., Dr. Ralph B. Smith, 502 Daniel Bldg., Tulsa.
Oregon: Portland, July 5. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.
Rhode Island: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.
South Dakota: Pierre, July 12. Sec., Dr. Park B. Jenkins, Waubay.
Tennessee: Memphis and Nashville, June 25, 26. Sec., Dr. A. B. De Loach, 426 Scimitar Bldg., Memphis.
Texas: Austin, June 22-24. Sec., Dr. M. P. McElhannon, Belton.
Utah: Salt Lake City, July 5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.
Vermont: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.
Virginia: Richmond, June 22-25. Sec., Dr. J. N. Barney, Fredericksburg.
Washington: Seattle, July 6. Sec., Dr. G. N. Suttner, Baker Bldg., Walla Walla.
Wisconsin: Milwaukee, June 29-30—July 1. Sec., Dr. J. M. Beffel, 3200 Clybourn St., Milwaukee.
Wyoming: Laramie, June 28-30. Sec., Dr. H. E. McCollum, Laramie.

Important Changes in the New Jersey Medical Practice Act

The following abstract from the New Jersey state medical law, as recently amended, has been received from Dr. H. G. Norton, secretary of the New Jersey State Board of Medical Examiners:

A. From and after the first day of July, 1919, no person shall be admitted to examination for license to practice medicine or surgery, unless he shall present to said board a certificate from the Commissioner of Education of this state, showing that in addition to, and subsequent to, obtaining the preliminary and academic education above mentioned, i. e., an academic education consisting of a four year's course of study in an approved public or private high school, or the equivalent thereof, and prior to commencing his or her study in a medical college, he or she has completed a satisfactory course of one year in a college or school of art and science approved by the Commissioner of Education of this state, during which year he or she has studied either French or German, and also chemistry, physics and biology.

B. From and after the first day of July, 1920, no person shall be admitted to examination for license to practice medicine or surgery, unless he shall present to said board a certificate from the Commissioner of Education of this state, showing that in addition to, and subsequent to, obtaining the preliminary and academic education mentioned in the first paragraph of this section and prior to commencing his or her study in a medical college he or she has completed a satisfactory course of two years in a college or school of art and science approved by the Commissioner of Education of this state, during which two years he or she has studied either French or German; and also chemistry, physics and biology.

C. Every applicant for admission to examination for a license to practice medicine or surgery shall, in addition to the above requirements, prove to said board that he has received a diploma conferring the degree of doctor of medicine from some legally incorporated medical college of the United States, which college, in the opinion of said board, was in good standing at the time of the issuance of said diploma.

After the first day of July, 1916, such applicant shall, in addition to the above requirements, further prove to said board that after receiving such degree, diploma or license; he has served as an intern for at least one year in a hospital approved by said board.

This board will not consider a course of lectures in which the applicant has been conditioned in more than one subject satisfactory, unless these conditions shall have been passed off before entering a subsequent course. If the student be conditioned in a number of subjects sufficient to prevent him advancing to a higher grade in the same college, that year will not be considered as one of the four courses required by this board, even though at another college he be allowed to enter an advanced class; but he must take that entire year over, whether at the college where he failed or at another one.

Connecticut March Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the practical and written examination held at New Haven, March 8-9, 1915. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 12, of whom 8 passed and 4 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Rush Medical College	(1906)	82.4
Harvard University	(1903)	75.3
Dartmouth Medical School	(1911)	80.1
Albany Medical College	(1914)	77.3
Coll. Phys. and Surgs. in City of N. Y.	(1887) 76.4; (1903)	81.6
Columbia University	(1912) 85.5; (1914)	79.4
FAILED		
College of Phys. and Surgs., Boston	(1908)	61.3
College of Phys. and Surgs., in the City of N. Y.	(1907)	66.7
Medico-Chirurgical College of Philadelphia	(1914)	71.2
Royal University of Naples	(1912)	45.2

Utah April Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, April 5-6, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Pacific Medical College*	(1914)	78.3, 79
John A. Creighton Medical College	(1914)	81.5, 82.1
Western Reserve University	(1912) 84.7; (1913)	80.4
FAILED		
Michigan College of Med. and Surg.	(1904)†	

* This institution is located at Los Angeles, and grants as much as three years of advanced standing for work done in osteopathic colleges, and is, therefore, classified among such institutions.

† No grade given.

Iowa May Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that 2 candidates were licensed on examination and 8 through reciprocity, May 6, 1915. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Hahnemann Medical College and Hospital, Chicago	(1909)	83
Rush Medical College	(1885)	75.9

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Northwestern University	(1911)	Missouri
Rush Medical College	(1906)	Missouri
Barnes Medical College	(1902)	Missouri
St. Louis College of Physicians and Surgeons	(1895)	Missouri
Washington University	(1912)	Missouri
John A. Creighton Medical College	(1913)	Nebraska
University of Nebraska	(1909)	Nebraska
Wisconsin College of Physicians and Surgeons	(1912)	Missouri

Book Notices

Die Chirurgischen Indikationen in der Nervenheilkunde. Ein Kurzer Wegweiser für Nervenärzte und Chirurgen. Von Dr. Siegmund Auerbach, Vorstand der Poliklinik für Nervenkranke in Frankfurt a.M. Paper. 6.40 marks. Pp. 204, with 20 illustrations. Berlin: Julius Springer, 1914.

The author believes that every neurologist should be able to determine and should determine the cases involving the nervous system in which operation should be performed by the surgeon, but he does not approve of the neurologist as a rule being at the same time the operator. The two fields he holds to be quite separate and distinct. The subjects first discussed are exophthalmic goiter and tetany. Three forms of exophthalmic goiter are described, one in which the thyroid is chiefly at fault, one in which both the thyroid and thymus are involved, and a third in which the thymus is the chief organ at fault. In the latter variety the thyroid is only quantitatively involved, but as it is at times difficult to recognize these different forms, he considers it one's duty to remove the thymus as well as to operate on the thyroid in all severe cases of exophthalmic goiter. In severe cases of tetany, transplantation of parathyroids should be tried after the method of von Eiselsberg. The question of the operative treatment of epilepsy is discussed pro and con at considerable length without much headway being made, although the author is inclined to believe that operations should be done more frequently to relieve the slight leptomeningitis with serous effusion, which he thinks is often the cause of epilepsy. In hydrocephalus, lumbar puncture repeated at regular intervals is strongly recommended when the canals are not closed above, and tapping the ventricles and puncturing through the corpus callosum in other cases. The operative treatment of head injuries, tumors of the brain, and the various forms of neuralgia is thoroughly covered. The work closes with quite an extensive bibliography.

A Nursing Manual for Nurses and Nursing Orderlies. By Duncan C. L. Fitzwilliams, M.D., Ch.M., F.R.C.S., Surgeon in Charge of Outpatients, St. Mary's Hospital. Cloth. Price, $2. Pp. 466, with illustrations. New York: Oxford University Press, 1914.

This book, the author hopes, will "increase medical knowledge among nurses, orderlies and Red Cross workers." As much of the first aid work falls to the share of the male nurses and orderlies, first aid in the field has been very fully dealt with, especially the various form of bandages, moving and lifting the injured singlehanded and with help, carrying by stretcher, improvising stretchers, loading and unloading the wounded, and artificial respiration. Except for these special subjects, the work differs little from other books on nursing.

Care and Feeding of the Infant. Practical Advice for Mothers and Nurses. By George D. Lyman, A.B., M.D., with an *Introduction by* Ray Lyman Wilbur, M.D., Dean of College of Medicine, Leland Stanford Jr. University. Cloth. Price, $1 net. Pp. 132. San Francisco: Paul Elder & Co., 1915.

This book is sound in principle, and the suggestions and advice are sensible and practical. The subjects concern rules for mothers during the prenatal period, the examination of the new-born infant, physical and mental development, the care of the new-born infant, infant feeding, the most frequent diseases of infancy, the training of the child, special directions for enemas, poultices, packs, etc., and a final chapter of modern formulas for the infant. The book is one which may be recommended to prospective mothers.

Mothercraft. By Sarah Comstock. Cloth. Price, $1. Pp. 214. New York: Hearst's International Library Company, 1915.

The articles making up this book appeared as a serial in *Good Housekeeping Magazine*. The author prefaces her work with an acknowledgment to numerous authorities whose names are listed. The book is one which can be recommended to a prospective mother. It is entertainingly written and well illustrated, and the scientific statements are shouldered by the authorities from whom the author has so casually borrowed.

Medicolegal

Liability of Carrier Wrongfully Taking Away Injured Passenger

(Easler vs. Columbia Railway, Gas & Electric Co. (S. C.), 84 S. E. R. 417)

The Supreme Court of South Carolina affirms a judgment for $1,000 damages in favor of the plaintiff, a boy who, while a passenger on one of the defendant's cars and preparing to alight, was thrown to the ground and had his shoulder bones injured. The court says that the boy's mother, living hard by, came out to the scene, and, it was alleged, desired to take the boy into her house, but the conductor carried the boy to the end of the line and back into the city to the company's surgeon for treatment, as he was bound to do by the company's rules. He was treated by the surgeon and discharged for well. The defendant asked that the jury be instructed that there was no evidence in the case that would warrant them in giving any verdict on account of alleged negligent treatment on the part of the physicians employed by the defendant. It is true that if a carrier shall (1) employ a surgeon to treat a patient, (2) and if the surgeon be reasonably competent, (3) and if the service to the patient be gratuitous, and (4) if the surgeon neglect the patient, then the master is not liable for the ill consequences to the pâtient. In that case, if the carrier owed any duty, he performed it when he selected a reasonably competent surgeon. In that case the carrier, as the alleged master of the surgeon, is not held liable for maltreatment, and on the theory that he has no power to direct the surgeon about his work. But in this case there was testimony—denied by the defendant, it was true—that the boy was taken away from the mother against her consent. If that was true, and of it the jury judged, then there was evidence which warranted the jury in giving a verdict on account of the treatment of the physicians, using the language of the requested instruction. It may be the duty of the carrier to call a surgeon to serve an injured passenger in a sudden emergency; but it is not the duty of the carrier to do so when the natural guardian of the injured passenger is present and dissents. It is manifest that the defendant had no right to the custody of the boy against the mother's consent; the forcible taking of custody was in itself a wrong; the relation of carrier and passenger was not immediately terminated; and, if the boy was injured while thus in the defendant's custody, no matter if by a surgeon, then the company was liable for such injury. The carrier would not be allowed to deny that it inflicted the injury.

Insured Having Tumor of the Pituitary Body

(Van Woert et al. vs. Modern Woodmen of America (N. D.), 151 N. W. R. 224)

The Supreme Court of North Dakota affirms a judgment for the defendant, which was sued on a benefit certificate or policy of fraternal life insurance issued to the plaintiff's husband on an application made May 8, 1909. The court says that the undisputed testimony showed that in the year 1907 the insured's left eye became inflamed, presumably from flax chaff. On bandaging the eye, he discovered that he could not see well with his right eye. His condition growing no better, in the spring of 1908 he consulted a physician relative to his eyes, and the physician found that there existed a partial atrophy of the optic nerve, slight as to the left eye, and more pronounced as to the right eye. Later, the insured consulted specialists, and in the early summer of 1910 he was operated on for tumor of the pituitary body. He died about Aug. 31, 1911, the direct cause of his death being the tumor of the pituitary body. The expert on neural surgery who performed the operation mentioned testified that in his opinion the insured had been suffering from the tumor of the pituitary body for many years, and that it was in existence as early as 1907. The principal defense was that the policy was void because the answers made by the insured in his application, to the effect that he never had a tumor, and that he had not within the last seven years been treated by or consulted any person, physician or physicians in regard to his personal ailments were untrue, and that his untrue answers to such questions were breaches of the warranties contained in the application and beneficiary certificate. The court is of the opinion that, even though the applicant believed that the trouble with his eyes was only local, still the defendant had a right to a complete, truthful answer in order that it might make such further investigation as it deemed necessary. The applicant warranted that he had not consulted a physician within the last seven years, and that he was not suffering with a tumor. The undisputed evidence showed that both of these warranties were untrue. They were both material facts which increased the risk. The truth of the conditions warranted was a condition precedent to a recovery on the policy. Whether or not the applicant acted in good faith was immaterial.

Liability for Wrongful Detention of Patient in Hospital

(Cook vs. Highland Hospital et al. (N. C.), 84 S. E. R. 352)

The Supreme Court of North Carolina affirms a judgment, amount not stated, in favor of the plaintiff, who sued the hospital and its medical director for damages for alleged unlawful detention, etc. The court says that the defendants denied that any wrongful acts were committed by them, and contended that they had a right to do what was done because the plaintiff signed an agreement on her entrance that she would be subject to the rules and regulations of the institution, and that she could not be set at liberty without danger to herself. But the trial judge properly told the jury that the plaintiff could not thus surrender control of herself to another by signing a paper at her entrance into the institution. "Good faith" is not a defense to the recovery of compensatory damages when the jury finds that there was illegal restraint of liberty and compulsory massage and hypodermic injections and other physical treatment on a defenseless woman, who was in the absolute power of the defendants and kept immured under lock and key and with barred windows, without information given by them to her family of her condition, and she denied all communication with them.

The plaintiff was not committed as insane, and, if she had been, the defendants did not account for the fact that they accepted her as sane by signing the agreement with her on her entrance into the institution. If she subsequently became insane, it was the duty of the institution to have at once notified her mother and sister. The testimony of the defendants, however, was that she was not insane. Evidently the medical director believed that he had absolute control of the plaintiff and the right to imprison her if she opposed his orders or will, and the right to impose on her whatever treatment he thought best, and that the family need not be consulted any more than the plaintiff herself. The effect of being at the head of such an institution is very often—too often—to render the person in charge callous and autocratic, and in his own opinion irresponsible to any one.

In this land, the law guarantees liberty to every one, subject to restraint only in the modes provided by the law; and even then there is the right to review the conduct of those in charge of those deprived of their liberty. The plaintiff was not committed to the care of the defendants by any legal proceedings adjudging her insane, and her signing the paper agreeing to the rules and regulations of the institution was not irrevocable. It did not subject her to the irresponsible power and control of the defendants. If the plaintiff did not abide by her agreement to obey the rules and regulations of the institution, the remedy of the defendants was to discharge her or, if her condition forbade this, to notify her relatives, and not to imprison her and force her to do their will.

Instructions are approved, which told the jury, among other things, that, even though she went in under the paper above referred to, if she was found perfectly rational, and knew what she was doing—what she wanted and did not want—and she wanted to leave the institution, and expressed it to the hospital authorities, and they knew of that fact, and then after that restrained her of her liberty, then it would be in law a wrongful detention, unless they were justified in restraining her under those rules of humanity and regard for her welfare which would permit her to be detained and restrained until reasonable apprehension of doing herself bodily harm had passed, if she was so nervous from any ailment or disease and so irrational that there was reasonable probability that, if released at the time, she would do herself some bodily harm.

Society Proceedings

COMING MEETINGS

American Medical Association, San Francisco, June 21-25.

American Assn. of Med. Milk Commissions, San Francisco, June 17-19.
American Academy of Medicine, San Francisco, June 25-28.
American Association of Anesthetists, San Francisco, June 21.
American Climatological and Clin. Association, San Francisco, June 18-19.
American Ophthalmological Society, New London, Conn., July 6-7.
Montana State Medical Association, Bozeman, July 14-15.
Nevada State Medical Association, Reno, June 17-19.
New Jersey Medical Society, Spring Lake, June 22-24.
Washington State Medical Association, Tacoma, July 20-22.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirtieth Annual Meeting, held at Washington, D. C., May 11-13, 1915

(Continued from page 1939)

Chronic Duodenal Ulcer

Dr. William J. Mayo, Rochester, Minn.: Published in The Journal, this issue, p. 2036.

Medical Cure of Gastric and Duodenal Ulcer by Means of Efficient Removal of Gastric Juice Corrosion

Dr. B. W. Sippy, Chicago: Published in The Journal, May 15, 1915, p. 1625.

DISCUSSION

Dr. L. F. Barker, Baltimore: Differences still remain between physicians and surgeons both as to diagnosis and to therapy. The diagnosis of duodenal ulcer is easy in typical cases and no one need mistake them. But medical men see so many cases of so-called hyperchlorhydria of a different type, that although Moynihan says these cases are all cases of ulcer, medical men are and will continue to be skeptical about it. In the doubtful cases we do find a real help in roentgenography and particularly in serial roentgenography. From chronic cholecystitis, chronic pancreatitis and chronic appendicitis the differentiation of duodenal ulcer is very difficult at times, and the findings at operation are often very disappointing. As to therapy, the question still is open. When there is hemorrhage, obstruction or perforation, surgery is, of course, our only proper recourse. But in milder cases we are in doubt; the gastrologists tell us that they see many recoveries under medical management. There may be some significance in the fact that more recent graduates in medicine suffering with this condition tend to be operated on, while the older men tend to prefer the medical treatment. Medical men and surgeons must continue to work together on this problem until the interchange of opinion and experience shall bring us at length to a conclusion.

Dr. William H. Welch, Baltimore: As to the preponderance of duodenal over gastric ulcer, Dr. Mayo has made out his case — at least *for those cases coming under observation.* But these observations do not determine the percentage of incidence in all classes of cases. This is not the last word on this question of comparative incidence.

Dr. Frank Billings, Chicago: Rosenow's work on the relation between infectious foci and ulcer, both of stomach and duodenum, will certainly receive more consideration in the etiology of these conditions than heretofore, and will be found to have a bearing on the nonhealing of ulcers. Moreover, it will be accepted that failure to treat infectious foci will invite recurrences of ulcer. Spasm and hypertrophy of muscle, together with infiltration of tissues as a contributing cause, may produce obstruction; this must be admitted; because from ulcers so situated that these factors cannot cause obstruction no such severe symptoms arise and thus no diagnosis is made except of hyperacidity. In watching Dr. Sippy's work, I have too often seen obstructive symptoms disappear to doubt that they can both originate in the way indicated and that they can be dissipated with the healing of the ulcer under medical management.

Dr. A. McPhedran, Toronto: I would like to ask Dr. Mayo if it is not true that after gastro-enterostomy the gastric peristalsis is still toward the pylorus, and are not the duodenal tissues still bathed with gastric juice? I have observed on the fluoroscopic screen in several cases that this does take place: the bismuth stream could be observed to flow through the pylorus with an immediate reflux into the stomach and through the gastro-enterostomy opening. I believe the greatest benefit of the surgical short-circuiting is due to the prompt discharge of the stomach contents; and if this prompt discharge can be established by medical means in a given case, then surgery has no place for that case.

Dr. E. Libman, New York: Our experience at Mount Sinai Hospital with respect to the relative frequency of duodenal and gastric ulcer coincides with Dr. Mayo's. In the cases of chronic gallbladder and appendix disease with symptoms simulating duodenal ulcer, we find that remissions often occur; in true ulcer the symptoms are a continuous performance as a rule. Moreover, in the appendix cases, there may be pain in the left lower quadrant, which never occurs in ulcer.

Dr. Julius Friedenwald, Baltimore: We have found the relative percentage of duodenal and gastric ulcer to be from 52 to 48 per cent. in cases in which Dr. Finney operated. In duodenal ulcer, by roentgenography we find a hypermotility and a filling defect not present in gastric ulcer. Dr. Finney prefers pyloroplasty for the surgical treatment of this condition.

Dr. C. F. Hoover, Cleveland: There may be a difference between the ease of locating ulcers on the distal side of the pylorus and the proximal side. Dr. Mayo's results were arrived at by the direct evidence of inspection of the serosa, inferentially concluding that the appearance of the serosa is a dependable index of the condition on the inside of the intestine. I recently saw a case of suspected duodenal ulcer in which no ulcer was found at operation, but in which afterward an enormous ulcer was found on the proximal side of the pylorus not indicated by any appearance on the serous surface. Thus gastric ulcers may be missed even after surgical inspection of the organ.

Dr. S. Solis-Cohen, Philadelphia: I wish to protest against laying too much stress on hyperchlorhydria as a positive sign of ulcer either of the stomach or of the duodenum. Also, against accepting hypochlorhydria as conclusive evidence against ulcer. The work of Dreyfuss and Hawk shows that our methods of diagnosis must undergo revision, especially as regards our conceptions of the time of maximal secretion. Their study of the curve of secretion shows very great variations in the time of maximal secretion. The demonstration of hypermotility is a great aid in the diagnosis of duodenal ulcer, and I would strongly urge the personal observation by the physician of the gastric and duodenal movements on the fluoroscopic screen.

Dr. Louis B. Wilson, Rochester, Minn.: I beg to call attention to two types of lesions of the gastroduodenal tract which evidently present unusual diagnostic difficulties. They may be illustrated by two cases: 1. A patient was operated on by a competent surgeon who explored the gastric and duodenal regions without finding ulcer. Later the patient was examined with negative findings by an eminent clinician. He came into the hospital at Rochester moribund. An ulcer of the duodenum was found 3 inches below the pylorus and almost occluding the lumen. 2. A second patient came to the hospital almost moribund and with practically the same history as in the first case. This patient died, and necropsy revealed cancer of the cardia. Thus it would seem that lesions involving the extreme limits of the ulcer-bearing area may readily escape observation even at operation.

Dr. H. G. Wells, Chicago: Dr. Mayo spoke of the recurrence of ulcer at the site of operation, especially after occlusion of the pylorus. Rosenow has studied experimental ulcer formation in Pawlow dogs, and has found that they tend to form at the point of operation. May it not be that the surgeon makes such a favorable site for ulcer formation if infectious foci are not attended to as part of the treatment?

Dr. M. G. Fussell, Philadelphia: As has been said, physicians are constantly treating cases of so-called hyperchlorhydria. When such cases are thoroughly studied under careful dietetic management and with the aid of roentgenoscopy, they separate themselves into their proper classes: those that do not improve under medical treatment are regarded as surgical cases and by the competent physician are referred to the surgeon.

Dr. William J. Mayo, Rochester, Minn.: I wish to emphasize one settled conviction: If the surgeon cannot demonstrate the presence of an ulcer to the satisfaction of the clinician standing 10 feet away, such a stomach or duodenum should not be operated on. My practice is to excise gastric ulcers whenever possible; duodenal ulcers do not lend themselves so readily to excision. I have never known scar tissue in the duodenal or gastric mucosa to stretch any more than such tissue does elsewhere, but it is perfectly true that if obstructive symptoms are due to edema and muscle spasm alone, relief of the obstruction will follow any measure which will abate the edema and spasm. I have found, as have others, that in cases of acute perforation, when the opening is cleancut and recent, the patients recover with simple repair of the perforation, and some get well spontaneously; these ulcers have definite acute appearances and are probably of the type produced by Rosenow. They are unlike chronic ulcers. Those patients who recover under medical treatment should be given a chance to do so.

(To be continued)

AMERICAN GYNECOLOGICAL SOCIETY

Fortieth Annual Meeting, held at White Sulphur Springs, W. Va., May 18-20, 1915

(Concluded from page 2016)

A Precise Method of Choosing a Time for Operation in Pelvic Inflammation of Tubal Origin

Dr. Frank F. Simpson, Pittsburgh: The questions of mortality, or postoperative morbidity, and the smoothness of convalescence depend almost entirely on a strict adherence to the following postulates: 1. The patient shall have recovered from her acute illness and shall have regained a satisfactory margin of reserve strength. 2. The temperature shall not have risen above normal a single time for a minimum period of three weeks. 3. There shall have been no marked or persistent rise of temperature following a careful bimanual examination. 4. The inflammatory exudate surrounding the focus of infection shall have been completely absorbed.

DISCUSSION

Dr. Joseph Brettauer, New York: Not only do we minimize the death rate by conservative measures, but we decrease the number of patients for whom we find an operation necessary. Many of these patients do not need an operation in the case of purulent collection in the tubes or in abscess formation. The pathologic and anatomic end-results are a tubo-ovarian cyst, a closure of the tube with adherence of the ovary, and breaking through of the follicle into the tube with a resulting tubo-ovarian cyst, which, in many instances, never requires an operation as there are no symptoms, and it is detected often by mere accident.

Dr. John O. Polak, Brooklyn: I applied the plan that has been outlined by the essayist eight or nine years ago and followed it to the degree of overconservatism, but I think I have saved hundreds of organs. I have been surprised to find later how perfectly the pelvis has regenerated, not only as regards functional ability, but also as to the actual possibilities. For instance, I have seen cases after three or four years absolutely clear up, and pregnancy has occurred after mixed infection.

Dr. Thomas J. Watkins, Chicago: Sometimes it seems of value to operate very soon after these patients have acquired a complete immunity to the infection, taking the temperature and the white count with the idea that there will be some advantage in operating before the adhesions become thoroughly organized. The increased amount of raw surface resulting from operating as soon as immunity has occurred is much greater than the raw surface which remains after operating, if the adhesions have become somewhat organized so as to make the advantage in favor of the later operation. The number of adhesions encountered in operating at an earlier period are undoubtedly greater, many of them being absorbed more readily than they are during a later period.

Dr. J. Wesley Bovée, Washington, D. C.: As soon as Dr. Simpson told me of his method of treatment, I adopted it, and in conjunction with the leukocyte count, I have followed it very thoroughly except in two classes of cases. In the tubercular cases I would operate at once. In the other class I have markedly gone afield, and that is in the acute gonorrheal cases. I am not yet ready to report on my work in this regard. I have not seen the abdominal conditions after this procedure, but I have sterilized the vagina and vulva with iodin and the interior of the uterus by injecting it, the vagina and fallopian tubes, opening the abdomen, separating adhesions, painting all raw surfaces, except normal peritoneum, thoroughly with iodin, putting in drains down to the culdesac before I opened the abdomen, and then draining through the culdesac of Douglas, and I have been pleased with the results. I have done this in the acute cases with a temperature of 103.6 F. For the cases that are more subacute and with lower temperature, I do not think the plan is feasible.

Dr. H. S. Crossen, St. Louis: One has more or less difficulty to determine when to operate on a mass that has passed the acute stage and is in the subacute or chronic stage. It may be two months or two years since the acute infection took place, and it is a question whether or not to do an abdominal operation. We can often determine a gonorrheal infection, and it is safe to operate within three months afterward or two months after sterilization. If it is a streptococcus infection, it is never safe. Streptococci masses are in many instances found self-sterilized. On the other hand, there have been other cases reported in which the infection has lasted as long as six or even twelve years.

Diagnosis of Ectopic Gestation

Dr. George Tucker Harrison, Charlottesville, Va.: One error of diagnosis must be guarded against carefully, and that is to assume that the case is one of hematocele. Such a case I reported some years ago. The deep situation of the fetal sac in Douglas' culdesac and the rough, uneven surface above simulated the characteristic phenomena of an accumulation of blood in the posterior pelvic cavity. Before I saw the woman she had suffered from a chill, followed by fever. When she came under my observation the temperature was 105 F. My diagnosis was infected hematocele. A posterior colpotomy was performed, and on the finger entering the cavity, a 4-months fetus was discovered. Through fear of a fatal hemorrhage, the placenta was not removed, but treated by continuous irrigation. The patient ultimately made a good recovery.

DISCUSSION

Dr. Arthur H. Curtis, Chicago: In the diagnosis of tubal pregnancy, I want to mention enlargement of one ovary due to the presence of a corpus luteum. This enlargement in the case of tubal pregnancy is often no greater than is that in association with normal menstruation, but the ovary is noticeably enlarged and feels about double the normal size.

Dr. Philander A. Harris, Paterson, N. J.: One should not place too much reliance on the physical examination of the pelvis in any stage of pelvic congestion. Ectopic gestation is likely to present varied conditions and symptoms in different patients. The important thing in order to make a diagnosis of the condition, is to get the primary history as well as the initial symptoms of ectopic gestation.

Dr. Herman J. Boldt, New York: A condition which makes the diagnosis difficult is a virulent inflammation of the adnexa. No condition, so far as the history and the objective symptoms go, is so likely to lead to error in diagnosis as that.

Types of Carcinoma of the Uterus

Dr. Lawrence W. Strong, New York: It is customary to call a carcinoma which adheres to the glandular form an adenoma destruens and to speak of the secondarily solid one as adenocarcinoma. This leads to the idea that an adenoma destruens is not a carcinoma in the true sense, while in reality it is a carcinoma from the start. Adenocarcinoma is a rather poor term because it suggests a combination of adenoma and carcinoma. Carcinoma glandulare is the best designation for this type. Benign adenomas of the uterus do not exist, except in the form of adenoma polyposum. Glandular tumors not on the surface are carcinomas from the start. A wedge-shaped excision including normal tissue is to be preferred for a diagnostic specimen in suspicious cases of carcinoma colli. A frozen section is not desirable in collum carcinoma, since a suitable piece mav be removed without anesthesia a few days prior to the operation, allowing careful embedding. No likelihood of implantation metastasis will result in the few days intervening. The objections to frozen sections at operation in suspected collum carcinoma are those of frozen sections in general. In the case of curettings from the corpus, a frozen section should never be attempted. The tissue is too frail for manipulation, and gross inspection is a reliable factor in interpretation.

DISCUSSION

Dr. John G. Clark, Philadelphia: As one realizes the enormous changes which the endometrium undergoes during the twenty-eight cyclic days, the variations are so extreme and so closely simulate in many instances pathologic processes, that the mere question of a hasty diagnosis by frozen section while the patient is on the table is a hazardous one, and will do as much harm as good.

Dr. Frederick J. Taussig, St. Louis: At the Barnard Cancer Hospital we have had 150 cases of cancers of the female genital tract in ten years. Fully three fourths or four fifths of the cases were invariably late cancers. We did not find more than two or three cases in which the tumor lay primarily in the corpus or body of the uterus. We have had cancers of the cervix which have gradually extended up into the fundus, but of cases that started in the fundus and made a large tumor and broke into the peritoneal cavity, we have not had more than two or three cases.

Dr. Herman J. Boldt, New York: The unreliability of frozen sections was brought home to me three or four years ago in a case in which I suspected the presence of carcinoma. I sent a piece of the tissue to the laboratory and waited for the report. This was to the effect that we had a benign condition and I did not do anything, except the plastic work which was necessary. A week or ten days later the laboratory sent a report with an apology for having made an error in diagnosis, based on the frozen section. The condition was malignant, and I had to do a more difficult operation than I would have done at the start.

Bladder Function After Confinement After Gynecologic Operations

Dr. Frederick J. Taussig, St. Louis: While there are gradations of deficiency in bladder function after confinement and operation, we can for practical purposes divide patients into four groups: 1. Those who show at such times no appreciable difference from normal micturition. 2. Those who, while able to void urine spontaneously, do not for a day or two empty their bladder completely. 3. Those who require catheterization one or more times in the first few days, but are then able to void urine without further trouble. 4. Those with prolonged interference of bladder function, who, even when finally able to void urine after several days of catheterization, are able to expel only a part of the bladder contents. The character of the operation, the form and amount of the anesthetic, the age of the patient, the nervousness of the individual, and the degree of sensitiveness of her bladder mucosa are all factors that to a greater or less extent come into play in producing urine retention, and the object of the gynecologist should be to regulate his therapy as far as possible in accordance with the probable factors in his case.

Laboratory Diagnosis of Chronic Infections of the Urinary Tract in Women

Dr. Arthur H. Curtis, Chicago: Chronic infections of the urinary tract can best be diagnosed by one who is actively engaged both in clinical work, including cystoscopy, and in laboratory study. Careful correlation of clinical findings and laboratory methods, with extensive modifications in cultural technic to meet individual cases, is essential. The source of even small amounts of pus in the urine should be investigated; the place of its formation should be definitely localized through the assistance of ureteral catheterization. Persistent pyuria in the absence of a gross bladder lesion is almost invariably due to kidney disease. In those frequent cases of bladder irritability which yield clear, bacteria-free urine, cultures from the traumatized ureteral canal, or from the introduction of a probe into Skene's ducts, may demonstrate the cause of infection. When bacteria are widely scattered or grow with difficulty, a mixture of the urinary sediment with blood followed by making a large number of ascites-blood agar tubes, of high dilution, result in conditions favorable for the development and isolation of the bacteria present. Experience teaches that the chief lesions in urinary tuberculosis are usually renal. In obscure cases, laboratory diagnosis is facilitated by the use of potassium iodid, tuberculin, kidney massage, limitation of liquids, repeated examinations of fresh specimens after high power centrifugation, Petroff's cultures, and the injection of a series of medium-sized guinea-pigs. There is seemingly a tendency to put undue stress on functional urinary tests at the expense of careful routine examination.

Use of the Galvanocautery Knife for Excision of Mammary Tumors for Microscopic Diagnosis

Dr. J. Wesley Bovée, Washington, D. C.: Shortly after installing the Downes electrothermic angiotribe in 1903, I began experimenting with it in the treatment of the uterus and of the breast. For galvanocauterization of the advancing cervical cancer, I devised a cooling vaginal speculum that has proved very efficient, and in breast tumors localized and only suspicious of malignancy, I apply the galvanocautery for excision of the growths, or removal of portions of doubtful tumors for microscopic examination.

In this work, carried out in many cases, I have found but one objection when properly used. This consists of the slowness of the cautery knife when the breasts have been large. This led me to change the technic somewhat. To economize in time I adopted the plan of cutting the tissues for a short distance with a sharp knife, and with the flat sides of the cautery knife, immediately sealing to a considerable depth the sides and bottom of the wound. The use of the knife is again resumed, to be followed by the cautery as before. This process has been continued until the tissue desired is entirely removed, leaving behind a crater with charred boundaries. The hot oil that is fried from the tissues during this procedure is taken up promptly with small pledgets of cotton or gauze in the grasp of forceps and at once discarded. The wound is now covered carefully and the report of the microscopic investigation awaited. If the tissue is reported to be malignant, a radical operation is at once performed. If it is reported to be benign, the surgeon may yet decide, from a consideration of the clinical evidence, to perform a radical operation. If the operation is not to be extended, the wound margins are trimmed of all cooked tissue and the proximal portions of severed milk ducts, and the wound closed completely with sutures. The J. Collins Warren operation I have performed entirely with the knife and cautery with satisfactory results.

The Treatment of Pyelonephritis in Pregnancy

Dr. Raleigh R. Huggins, Pittsburgh: Experiments lead to the conclusion that ascending infection reaches the kidney through the lymphatics more frequently than was formerly supposed. If this is correct, much may be learned from a careful search for the primary focus. This may be found in the bladder itself. Owing to the intimate relationship between the lymph system of all abdominal viscera, and that ot the kidney, the primary infection may lie in the fallopian tubes, appendix or the gallbladder. In severe cases, the diagnosis is usually made without difficulty. The evidence of toxemia, high leukocytosis, and pus in an acid urine, with the presence of colon bacilli in pure culture, are symptoms which are most suggestive. When pain is a prominent feature, pleurisy, infection of the gallbladder, salpingitis, or stone in the ureter or kidney must be excluded. There is usually a pronounced rise in the temperature, and chills. If not contraindicated, cystoscopy with catheterization of the ureters has the same field of usefulness here as a diagnostic measure that it has in the nonpregnant. The important factor in the recognition of this complication of pregnancy is to remember that in the presence of the foregoing symptoms it is the condition most likely to be found. The treatment in some instances requires careful judgment. The mild cases are usually self-limited and respond to rest, proper diet and urinary antiseptics. Irrigation of the pelvis of the kidney should be done if the infection does not yield to simple measures. Severe pyelitis is always a danger for both mother and child, and if the clinical manifestations do not subside promptly under this treatment, then one must consider nephrotomy or the interruption of pregnancy. When surgical measures are not employed in some manner, death not infrequently occurs.

Postoperative Renal Infection

Dr. George Gray Ward, New York: Many instances of obscure and apparently unaccountable elevation of temperature, with concomitant symptoms of septic absorption occurring later in the course of a postoperative convalescence, are cases of renal infection, and they are much more frequent than was formerly believed. In the majority of cases, these renal infections are of hematogenous origin and are due to the colon bacillus. In studying the reports of cases of this disease, one is struck with the frequency with which they follow some operative procedures. The evidence and research tend to prove that the large majority of such renal infections are hematogenous in origin, although some cases may be caused by an ascending infection, either by way of the periureteral lymphatics or by extension up the lumen of the ureter. There are three types of infection, depending on the degree of virulence. They are: 1. Cases which are mild in character. The patient is not severely ill and yields to the thorough flushing of the kidneys by the ingestion of water, formaldehyd, proper diet and rest. The virulence naturally varies according to the particular organism, the condition of the kidney, and the general bodily resistance of the patient. 2. Cases in which the kidneys contain numerous septic infarcts, and minute or microscopic foci which are superficially situated in the cortex of the organ. Decapsulation or incision with drainage usually results in recovery. 3. The fulminating type which is characterized by a profound toxemia, and which is rapidly fatal unless a nephrectomy is done. Fortunately this type of the disease is usually unilateral. If operation is necessary, nephrectomy should not be done unless there are indications for it, as shown by the appearance of the kidney. A decapsulation or nephrectomy with drainage is sufficient in many cases, especially in the colon bacillus infections.

AMERICAN PEDIATRIC SOCIETY

Twenty-Seventh Annual Meeting, held at Lakewood, N. J., May 24-26, 1915

The President, Dr. George N. Acker, Washington, D. C., in the Chair

Cubic Air Space for Institutional Bottle-Fed Infants

Dr. Thomas S. Southworth, New York: The majority of hospital and institutional wards for infants provide 1,000 cubic feet and upward of air space for each infant, and only a few report 600 or less. Ventilation is deemed as important as air space. No allowance of air space is made for the attendants. Separation of the beds plays as large a rôle in limiting the spread of infections as does air space. Bottle-fed babies require more air than nursing babies, and as much as sick babies. Infants, especially bottle-fed infants, should have as much air space as adults, or more. Bottle-fed infants, when retained in institutions for a considerable length of time, cannot be considered as well. Limited air space, involving limited floor space, is an important contributing factor in the morality of artificially fed infants. Free ventilation is also of great importance to the well-being of infants. The mere presence of windows does not constitute ventilation. The example of the more progressive institutions is nullified by state and local regulations licensing those with a minimum air space, in which there is a high mortality.

DISCUSSION

Dr. L. Emmett Holt, New York: Is it preferable to have large hospitals especially for the care of children, particularly young children, or to have children cared for in special wards of large general hospitals? It is hard to get the authorities in general hospitals to realize that children need about twice as many nurses as adults.

Dr. Rowland G. Freeman, New York: Children cannot get well, no matter how much air space there is, if they do not have plenty of freely moving air. The advantages of a general hospital are that there are better facilities for doing good work, and that contact with the men working in other departments often leads to the adoption of methods for treating children that have been found successful with adults.

Dr. L. E. LaFetra, New York: At Bellevue Hospital, it has been found that the babies in the ward do better, the fewer there are, and I think that this is because each nurse, having fewer cases to attend to, can give more individual attention to each. There is often inadequate nursing at night in children's wards connected with general hospitals.

Dr. S. McHamill, Philadelphia: If the managers of general hospitals could be induced to provide the proper conditions, I see no reason why children could not be as well cared for in the wards; but I know of no general hospital that has a sufficient number of wards to provide for all classes of cases in children.

Dr. Henry L. Coit, Newark, N. J.: The reason that an artificially fed infant needs more cubic air space than one that is breast-fed is that the former, often with a subnormal temperature, with no capacity to generate heat, radiates heat from its body more freely.

Dr. Fritz B. Talbot, Boston: Artificially fed infants require a higher temperature because they are not making enough fuel to keep warm.

Dr. Samuel S. Adams, Washington, D. C.: At our institution, we have the mothers come each afternoon and take their children out for an airing. If you cannot get what you want for the babies from the men in charge of a hospital, explain their needs to the ladies' board, and you will usually get what is required.

Parapharyngeal Abscess as Distinguished from Peritonsillar and Retropharyngeal Abscesses

Dr. Henry Heiman, New York: There occurs, especially in children, a form of abscess occasionally mistaken for retropharyngeal abscess, which is really a parapharyngeal abscess, as its site is in the lateral column. It originates in the superior chain of the deep cervical glands, as distinguished from the retropharyngeal glands. These abscesses, as a rule, are cured only by external operation.

DISCUSSION

Dr. Wilder Tileston, New Haven, Conn.: Last winter I saw a case of parapharyngeal abscess in which the abscess perforated internally and was cured without external incision.

Dr. Thomas S. Southworth, New York: There is a peculiar feeling that characterizes peritonsillar abscess. The impression of a vague swelling, without any particular outline, always suggests abscess in the throat.

Dr. L. E. La Fetra, New York: I have seen many abscesses that are not peritonsillar abscesses in the ordinary sense, accompanied by a swelling on the outside. These could be opened from within. They frequently subside, if given time and treated with hot irrigations of the pharynx.

Ductless Gland Therapy

Dr. Royal S. Haynes, New York: In cases of cretinism it is wise to investigate the condition of the pituitary gland. The striking thing in the therapy is the fact that symptoms that might have been due to hypothyroidism clear up under the administration of pituitary gland. In a case of mine there was a striking change in the contour of the hands, ankles, hips, buttocks, thighs and shoulders that could be made to appear or recede by giving or taking away pituitary gland. The effect produced on the child's disposition was also striking. Pars intermedia therapy likewise seems to have done something. We have come only part of the way in this individual case, and these conclusions are merely preliminary.

DISCUSSION

Dr. Charles Herrman, New York: Very frequently more than one gland is attacked. I have been using a tablet containing extracts of three glands, the thyroid, suprarenal and pituitary. I have secured better results in these cases than when thyroid alone was used.

Energy Metabolism of a Two Months' Old Child Fed on a Prolonged Protein-Rich Diet

Dr. S. Raymond Hoobler, Detroit: Protein retained for growth causes no increase in metabolism. Oxidized protein does cause an increase in metabolism, varying with the amount oxidized. The cause of this increased metabolism of protein is the stimulation produced by the amino-acids and their products derived from protein decomposition. When large amounts of protein are fed, with insufficient carbohydrate and fat, even though ample calories to cover the caloric need may have been given, there is a drain on the fat and carbohydrate stored in the body. Protein food, though greatly in excess, cannot be substituted for needed fat and carbohydrate. The proportion fed, as advised and taught, is much in excess of the need.

DISCUSSION

Dr. John Howland, Baltimore: In some work which I did, I was able to show that protein not only produced an excess of heat by being itself consumed, but that, it being impossible to store more than a certain amount of it in the body, it also acted as a stimulus to general metabolism.

Dr. Fritz B. Talbot, Boston: When the protein is increased in raw cow's milk, the visible symptoms of protein indigestion come on much sooner than when other forms of protein are added.

Total Nonprotein Nitrogen and Urea of Blood, and the Phenolsulphonephthalein Excretion in Infancy and Childhood

Drs. Wilder Tileston and Charles W. Comfort, New Haven, Conn.: The phenolsulphonephthalein excretion is somewhat higher in children than it is in adults, and the nonprotein nitrogen and the urea both show less tendency to increase in disease. The practical importance of this lies in the direction of prognosis and treatment. It is an important guide to the diet in nephritis, such as is found in scarlet fever. If the nitrogen is high, it is necessary to restrict the diet; but if one finds normal nitrogen, it is possible to allow more latitude in the diet. From analogy to adults, it seems probable that rising nitrogen will indicate some danger of uremia.

DISCUSSION

Dr. John Lovett Morse, Boston: We have found the phenolsulphonephthalein excretion higher in health in children than in adults. We have also found it little interfered with in a number of cases of nephritis.

Dr. Rowland G. Freeman, New York: One child with severe nephritis passed only 3 per cent. of phenolsulphonephthalein in two hours, but he has practically recovered. That could scarcely occur in an adult.

Dr. Henry Koplik, New York: A low phenolsulphonephthalein excretion is not inconsistent with complete recovery. There may be severe nephritis in children with quite a good phenolsulphonephthalein excretion—65 per cent. in two hours. On the other hand, we had an exception as low as 30 per cent. in a severe case of pyelitis with complete recovery. The test should be made before subjecting a child with nephritis to a surgical operation.

Dr. Wilder Tileston, New Haven, Conn.: I saw a case of nephritis in an adult last year. The phenolsulphonephthalein excretion was zero, yet the woman recovered. The test shows the function of the kidney only at the time it is made.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

May, XV, No. 5, pp. 793-944. Part II.

1 *Respiration Calorimeter for Study of Disease. G. Lusk, New York.
2 *Respiration Calorimeter of Russell Sage Institute of Pathology in Bellevue Hospital. J. A. Riche and G. F. Soderstrom, New York.
3 *Organization of Small Metabolism Ward. F. C. Gephart and E. F. DuBois, New York.
4 *Determination of Basal Metabolism of Normal Men and Effect of Food. F. C. Gephart and E. F. DuBois, New York.
5 *Measurement of Surface Area of Man. D. DuBois and E. F. DuBois, New York.
6 *Absorption of Fat and Protein in Typhoid. W. Coleman and F. C. Gephart, New York.
7 *Calorimetric Observations on Metabolism of Typhoid Patients With and Without Food. W. Coleman and E. F. DuBois, New York.
8 Diabetic Respiratory Quotient. G. Lusk, New York.

1. **Respiration Calorimeter for Study of Disease.**—The story of the Atwater-Rosa-Benedict calorimeter is told by Lusk in brief, comprehensive, perhaps one might say semipopular language. The calorimeter has been successfully used in many experiments on dogs and babies. For the first time direct and indirect calorimetry were found to agree during hourly periods of experimentation.

2. **Respiration Calorimeter of Russell Sage Institute of Pathology.**—The original Atwater-Rosa respiration calorimeter with the improvements added by Benedict, Williams and others has been adapted for clinical study in Bellevue Hospital. The form of the apparatus makes it perfectly comfortable for patients. The accuracy is such that in observations lasting three or four hours the heat production, carbon dioxid elimination and oxygen consumption as determined by alcohol and electric tests can be measured with an average error of 0.9 per cent., 0.6 per cent. and 1.6 per cent., respectively. In periods one hour long the average error for heat measurement was 1.2 per cent., for carbon dioxid 1.6 per cent. and for oxygen 3.2 per cent. The calorimeter never needs more than three men for its operation, and two men have repeatedly made all the readings and all the calculations in hourly periods.

3. **Organization of Small Metabolism Ward.**—The method of collecting twenty-four-hour specimens of urine, described

by Gephart and Du Bois, is a new one. A large number of 20-ounce, round, wide-mouthed bottles with cork stoppers are kept in the ward. These have been etched on the side so that one can write on them with a pencil. At 5 a. m., the time at which the twenty-four-hour period ends, each patient is given a bottle and made to empty his bladder. The bottle is then marked with his name, the date, the hour and minute. The volume is estimated for clinical purposes by comparison with a calibrated bottle of the same capacity. The data are then recorded on a special slip of paper to go to the laboratory and also on the diet chart. A little toluene is added to the urine bottle, which is corked and stored in the ice-box along with the previous voidings of that twenty-four-hour period, each voiding being in a separate bottle. At about 9 o'clock in the morning the laboratory man checks up the bottles with the records on the laboratory slip, and with the nurse's notes takes all the bottles to the laboratory, measures the volume accurately, makes up to volume and analyzes a sample.

The collection of feces is somewhat more difficult. Patients who can get out of bed defecate into a weighed bucket in the commode. This bucket is then weighed again. A little formalin is added and the whole sent to the laboratory where the specimen is thoroughly mixed and one-tenth removed to be dried and added to the other aliquot portions of that period and analyzed. Bedridden patients use a weighed bed pan from which the feces are transferred to a covered bucket for transportation. Most of the patients with acute diseases are given every morning an enema of hypertonic salt solution. To divide the periods, powdered carmin (0.3 gm., 5 grains) is given with the first meal of the period and with the first meal after the period is ended. Experience has shown that it is much easier to determine the exact point of appearance of the carmin in the feces than to find the point of disappearance. When patients are being given enemas it is easier to discover traces of carmin than traces of charcoal. Periods are made as long as possible to minimize the errors of division.

4. **Determination of Basal Metabolism of Normal Men and Effect of Food.**—Seven normal men were studied by Gephart and Du Bois with and without food, as controls for the observations on patients in the metabolism ward. Their average basal metabolism (at perfect rest, fourteen to eighteen hours after their last meal) was 34.8 calories per hour per square meter of body surface. The average basal metabolism of eighty-nine normal men studied by Benedict, Emmes, Roth and Smith was 34.7 calories. The average of the seven men studied in the Sage bed calorimeter in Bellevue and of the five men studied in Benedict's bed calorimeter in Boston was 34.2 calories. As a result the authors have adopted the figure of 34.7 calories per square meter of the body surface as the average heat production of normal men between the ages of 20 and 50 years.

All of the subjects studied in the bed calorimeter were within 11 per cent. of this average. Of the seventy-nine men of normal figure between the ages of 20 and 50 studied by Benedict and collaborators, 86 per cent. were within 10 per cent. of the average and the remainder between 11 and 15 per cent. If therefore, the heat production of a given subject suffering from some pathologic condition is more than 10 per cent. above or below the average it may be regarded as abnormal, but cannot be proved abnormal unless the departure from the average is at least 15 per cent.

Groups of men of weights between 45 and 85 kilograms show a mean heat production within 2 per cent. of the average according to surface area. According to calories per kilogram of body weight the group weighing between 75 and 85 kg. produces 7 per cent. less than the average figure and the group between 45 and 55 kg. produces 9 per cent. more than the average. The conclusion is therefore drawn that among groups of men of varying weights metabolism is proportional to surface area according to Rubner's law and is not proportional to body weight. By using the surface area as a basis one can refer all individuals to a single average normal figure, 34.7. If one uses the body weight as a basis a different normal figure is required for each weight.

5. **Measurement of Surface Area of Man.**—This discussion of the relationship of metabolism to surface area has been based almost entirely on Meeh's formula as determined in 1879. Subsequent observers have found a consistent plus error in this formula amounting to as much as 36 per cent. in the case of very fat individuals. The surface area of the various parts of the body can be determined as follows: A mold of the surface is made by pasting paper over tight-fitting underwear. The area of the mold is then determined by cutting it in pieces, printing a pattern on photographic paper, cutting out the pieces of the pattern and weighing them. To determine the area of each part of the body by linear measurements alone a formula has been devised by the authors on the principle of length times the average breadth times a constant. The sum of these parts gives the total surface area of the body. Five individuals of widely varying shapes have been measured by the Du Boises and the surface area as calculated from the formulas compared with the surface area as actually measured. In the five cases the average error was 1.7 per cent.

6. ***Absorption of Fat and Protein in Typhoid.***—The feces of seven typhoid patients on the high calory diet were analyzed by Coleman and Gephart for fat and protein in seventeen periods of from three to twelve days each in length. The average total fat loss for all the periods was 6.25 gm., corresponding to a percentage loss of 4.3 per cent. No differences were observed in the percentage absorption of fat in the early and later stages of the fever or up to the end of the first week of convalescence, when the intake was relatively large. The average total nitrogen loss for all the periods amounted to 1.57 gm., corresponding to a percentage loss of 11.2 per cent. The constant presence of fat and nitrogen in the feces, even in fasting, vitiates to some extent the validity of the results when expressed in percentages.

7. **Calorimetric Observations on Metabolism of Typhoid Patients.**—The heat production of typhoid patients was measured by Coleman and Du Bois by the methods of direct and indirect calorimetry in a series of sixty-one experiments. The two methods agreed closely, the total divergence being 2.2 per cent. and the average divergence in the individual experiments being 5 per cent. This and the entire absence of abnormal respiratory quotients indicate that in typhoid protein, fat and carbohydrate are oxidized to the same or approximately the same end products as in health, and in their oxidation give off the standard amounts of heat. Therefore the law of the conservation of energy applies to fever patients. The rectal temperature does not always give an accurate indication of the average change in body temperature, and better results are often obtained by well covered surface thermometers. The basal heat production rises and falls in a curve roughly parallel with the temperature. At the height of the fever it averages about 40 per cent. above the normal but in some cases rises to more than 50 per cent. above the normal. The specific dynamic action of protein and carbohydrate is much smaller in the febrile period of typhoid than in health and in some cases seems to be absent. In convalescence it may be greater than normal. In a majority of cases a rise in temperature is accompanied by an increasing heat production and an increasing heat elimination. Typhoid patients can store body fat on an abundant diet while losing body weight and body protein. Loss in weight and loss of protein are usually though not necessarily parallel. There is a toxic destruction of protein in typhoid. This is shown by the fact that patients have a distinctly negative nitrogen balance on a diet which contains more than enough calories to cover the heat production.

Journal of Biological Chemistry, Baltimore

May, XXI, No. 1, pp. 1-390

9 *Studies on Theory of Diabetes. Study of Narcotic Drugs in Phlorhizin Diabetes. W. D. Sansum and R. T. Woodyatt, Chicago.

10 Cholesterol Metabolism of Hen's Egg During Incubation. J. H. Mueller, New York.

11 Estimation of Lipoid and Acid-Soluble Phosphorus in Small Amounts of Serum. I. Greenwald, New York.
12 Several Factors of Acid Excretion in Nephritis. L. J. Henderson and W. W. Palmer, Boston.
13 Retention of Alkali in Nephritis. W. W. Palmer and L. J. Henderson, Boston.
14 Estimation of Non-Protein Nitrogen in Blood. I. Greenwald, New York.
15 Determination of Nitrogen by Kjeldahl-Folin-Farmer Method. V. J. Harding and F. H. S. Warneford, Montreal, Canada.
16 Determination of Sulfofying Power of Soils. P. E. Brown and E. H. Kellogg, Ames, Ia.
17 Does Butter-Fat Contain Nitrogen and Phosphorus? T. B. Osborne and A. J. Wakeman, New Haven, Conn.
18 *Studies on Physiology of Reproduction in Domestic Fowl. On Failure of Pituitary Extract Body (Anterior Lobe) to Activate Resting Ovary. R. Pearl and F. M. Surface, Orono, Me.
19 Quaternary Salts of Hexamethylene-Tetramine. Monohalogenacylated Aromatic Amines and Their Hexamethylene-Tetraminium Salts. W. A. Jacobs and M. Heidelberger, New York.
20 Id. Monohalogenacylated Simple Amines, Ureas and Urethanes and Hexamethylene-Tetraminium Salts Derived Therefrom. W. A. Jacobs and M. Heidelberger, New York.
21 Further Experiments on Relative Effect of Weak and Strong Bases on Rate of Oxidations in Egg of Sea Urchin. J. Loeb and H. Wasteneys, New York.
22 Development of Alkalinity in Glomerella Cultures. H. S. Reed and J. T. Grissom, Blacksburg, Va.
23 Gastro-Intestinal Studies. Method for Quantitative Estimation of Trypsin in Gastric Contents. W. H. Spencer, Philadelphia.
24 Effect of Acid Administration on Parathyroid Tetany. D. W. Wilson, T. Stearns and J. H. Janney, Jr., Baltimore.
25 Influence of Certain Vegetable Fats on Growth. E. V. McCollum and M. Davis, Madison, Wis.
26 *Starvation and Obesity, with Special Reference to Acidosis. O. Folin and W. Denis, Boston.
27 Perca Globulin. O. Folin and W. Denis, Boston.
28 Defense of Folin-Farmer Method for Determination of Nitrogen. O. Folin, Boston.
29 Creatinin and Creatin Determinations. J. L. Morris, St. Louis
30 Studies of Autolysis. Accelerating Effect of Manganous Chlorid on Liver Autolysis. H. C. Bradley and M. Morse, Madison, Wis.
31 *Influence of Natural Fats on Growth. T. B. Osborne and L. B. Mendel, New Haven, Conn.

9. **Narcotic Drugs in Phlorhizin Diabetes.**—It is concluded by Sansum and Woodyatt that their experiments offer no evidence that acetaldehyd is itself convertible into glucose or capable of promoting any new formation of sugar, which is in harmony with the observations of Friedmann that in liver perfusion experiments acetaldehyd is an acetone former, and not a sugar former. It is also concluded that the hypothesis that acetaldehyd promotes a new formation of sugar from fat has no more support than that which assigns to epinephrin a similar power. The hypotheses of antiketogenesis and diabetes which are based on the assumption that acetaldehyd promotes a new formation of sugar from fat are wholly untenable.

18. **Physiology of Reproduction in Domestic Fowl.**—From the evidence presented by Pearl and Surface it appears that the substance of the anterior lobe of the pituitary extract body of the cow, when injected into the abdominal cavity of hens in which the ovary is in a completely resting condition, does not cause an activation of the ovary, in the sense of inducing ovulation at an earlier date than that at which it would normally occur.

26. **Starvation and Obesity.**—Folin and Denis report on the fasting metabolism of two extraordinarily fat women, both essentially normal except with reference to their obesity. The analyses included practically all the determinable urinary constituents (except the metals), but chief interest concerned the acetone bodies. The results obtained suggest, however, that one perfectly safe, rapid and effective method of reducing the weight of very obese persons is by a series of repeated fasts of increasing duration, using the ammonia or *B*-oxybutyric acid elimination as a guide to the length of each fast. Two conclusions with reference to the nitrogen elimination suggested themselves: First, that the obese destroy less body protein during moderate periods of starvation than others; and, secondly, that with repeated fastings their adaptation to the complete utilization of body fat, which was indicated by a retarded and diminished excretion of actone bodies, is also accompanied by a sparing of the body protein. It is concluded that obesity is not a predisposing or contributing factor in the onset or intensity of the acidosis of starvation. The total acetone excretion with the breath in starvation is quantitatively insignificant (at most 1 gm. per day), and the notion, current among clinicians that they can smell acetone "all over the room" when a case of acidosis is present, is erroneous. By repeated fasts of moderate duration the obese acquire an increased ability to starve without the production of acetone bodies. The obese lose less body protein than others in the course of moderate periods of starvation (four to six days) and on repeating the fasts the losses of body protein become still smaller. Successive moderate periods of starvation constitute a perfectly safe, harmless and effective method for reducing the weight of those suffering from obesity.

31. **Influence of Natural Fats on Growth.**—The new features of this communication are summarized as follows: The failure of lard to promote growth in the same manner as other natural fats (namely, butter-fat, egg-yolk fat, cod liver oil) do, is not attributable to deteriorating changes arising from heat or chemical agents in the commercial manufacture of the product. Heating butter-fat with steam does not destroy its growth-promoting efficiency. Beef-fat also renders the inefficient diets used by us more suitable for producing growth in rats than does lard. When butter fat and beef fat are subjected to fractional crystallization from alcohol, the growth-promoting factor remains in the mother liquor "oil" fractions. The fractions containing the fats with high melting points are ineffective. Some quantitative aspects of the growth-promoting efficiency of the natural fats are discussed.

Journal of Infectious Diseases, Chicago

May, XVI, No. 3, pp. 349-504

32 *Influence of Oxidizing Substance (Sodium Iodoxybenzoate) on Immune Reactions. A. Arkin, Chicago.
33 *Simultaneous Infection in Child with Tubercle Bacilli of Human and of Bovine Type. A. de Besche, Christiania, Norway.
34 *Etiology and Experimental Production of Erythema Nodosum. E. C. Rosenow, Chicago.
35 *Starch Agar Useful Culture Medium. E. B. Vedder, U. S. Army.
36 *Complement-Fixation in Whooping Cough. W. Winholt, Chicago.
37 Various Sporotricha Differentiated by Fermentation of Carbohydrates. K. F. Meyer and J. A. Aird, Berkeley, Calif.
38 Individual and Group Variation in Guinea-Pigs in American Method of Testing Tetanus Antitoxin. L. B. Taber, Berkeley, Calif.
39 Studies on Gonococcus (Autolysis). C. C. Warden, Ann Arbor, Mich.
40 *Natural Hemolysins in Human Serum. J. A. Kolmer and A. J. Casselman, Philadelphia.
41 *Epidemic, Simulating Typhoid, Caused by Paragaertner Organism. G. H. Robinson, Providence, R. I.
42 *Complement-Fixation in Acute Rhinitis. K. Howell, Chicago.
43 Conglutination in Diagnosis of Dourine (Trypanosomiasis of Horse). H. Wehrbein, Ames, Ia.
44 *Ferment Activity of Blood Serum in Infectious Diseases. F. H. Falls, Chicago.
45 Germicidal Effect of Lactic Acid in Milk. P. G. Heinemann, Chicago.
46 Vacuum Method of Drawing Antihog Cholera Serum. T. P. Haslam, A. E. Hagan and R. V. Christian, Manhattan, Kan.
47 *Bacteriology of Rhinitis with Special Reference to Anaerobic Organism (Bacillus Rhinitis). R. Tunnicliff, Chicago.

32. **Influence of Oxidizing Substance on Immune Reactions.**—In order to study the influence of increased oxidation on other immune reactions, Arkin has used sodium iodoxybenzoate, an organic peroxid, which has a marked effect on oxidative processes in the body. He found that sodium iodoxybenzoate stimulates the production of hemolysin and agglutinin in rabbits when injected intravenously shortly after immunization. The results show that there is a close relationship between the production of antibodies and the oxidative processes. The substance probably acts by accelerating oxidations in the tissues which are the site of antibody formation. This acceleration is produced probably by some catalytic effect of the sodium iodoxybenzoate, for the small amount of oxygen injected into the circulation could not have this effect. That the action of this compound is exerted on the tissues is shown by the fact that the substance diminishes the intensity of the local allergic reaction

in sensitized animals. It has a marked inhibitory action on the local tuberculin reaction in tuberculous animals. This action is due to a more active oxidation by the tissues of the toxic substances which cause the inflammatory reaction. Whether these toxic substances acted on are the ones present in the tuberculin or are produced at the site of the inflammatory reaction in the tuberculous animal has not been determined. However, sodium iodoxybenzoate has the power of oxidizing tuberculin in vitro, and this oxidation is accompanied by a decrease in the toxicity when injected into normal animals.

All these results suggest that there is a close relationship between oxidation and immune processes, for a substance which is an organic peroxid stimulates the production of antibodies. It probably sets up in the tissues, which are the site of antibody formation, a more active oxidation, not the result of the amount of oxygen which it contains but because of some catalytic effect. That the compound can influence tissue oxidation is shown by its inhibitory action on the local allergic reaction, a reaction due, in part at least, to interference with oxidation at the site of the reaction.

33. **Human and Bovine Tubercle Infection.**—The strain of tubercle bacilli isolated by de Besche from the mesenteric gland of a tuberculous child which on first examination had to be classified as "atypical," on closer study proved to be a "mixed virus," since both types of tubercle bacilli were isolated from the cultures. The individual from whom the cultures were isolated had been infected with tubercle bacilli both of the human and of the bovine type.

34. **Etiology and Production of Erythema Nodosum.**—A series of cases are recorded by Rosenow in which a bacteriologic study of the blood, of the probable infection atrium, and of excised nodes was made with almost uniformly positive results, lesions quite like those of erythema nodosum developing in animals on intravenous injection of the organisms isolated. A diphtheroid, gram-staining, polymorphic, nonmotile, nonspore-forming bacillus producing small, round colonies in dextrose agar, and small, gray, or yellowish, nonhemolysing colonies on blood agar, and having a wide range of fermentative power, was isolated from erythematous nodes removed in each of eight cases. The same organism was isolated at the same time in pure culture from the blood in two cases, and in conjunction with B. welchii in one case. The infection atrium would appear to have been the tonsils so far as the clinical history in two cases indicates; in three others the tonsils contained an organism which produced hemorrhages in the skin in animals; in another case the organism was found in a superficial ulcer in the throat, and in still another in an abscess of a tooth. In three cases the infection atrium was not apparent nor could it be determined. In four of the cases there was a definite but mild arthritis; in three, myositis or fibrositis; in two endocarditis; in four lymphadenitis; in two pericarditis; and in three, mild nephritis. All of the typical cases ended in recovery.

35. **Starch Agar.**—The medium on which Vedder has had the best success in cultivating the gonococcus consists of beef infusion agar to which 1 per cent. of starch has been added.

36. **Complement Fixation in Whooping Cough.**—Fifty-one cases were studied by Winholt, twenty-two cases with a history of pertussis, and twenty-nine cases without any symptoms or recent history of pertussis. Except for a few minor changes the test for complement fixation has been made as described by Bordet and Gengou. His results indicate that complement fixation in pertussis is obtainable about two weeks after the onset of the disease. The fixation is not as strong at this time as it is eight to ten weeks after the onset. At eight months after the beginning of the whoop, the reaction may still be present but not marked. When the influenza bacillus is used as antigen with serum of pertussis patients, no complement fixation occurs. The serum of patients with pertussis, or convalescing from pertussis, agglutinates the bacillus pertussis, but the concentration of the agglutinin varies greatly. The influenza bacillus is not agglutinated by the serum of pertussis patients in dilutions above 1-20. These results, as well as the results of the tests for complement fixation and agglutination with the serum of immunized rabbits, indicate no relationship between the bacillus of pertussis and the bacillus of influenza; the results with the serum of patients indicate that the bacillus pertussis has a specific relationship to whooping cough, but that the influenza bacillus has not.

40. **Natural Hemolysins in Human Serum.**—Sheep and dog according to Kolmer and Casselman are not the ideal hemolytic systems for performing complement fixation work with human serum, but hog, rat, chicken, horse, rabbit, or guinea-pig systems are preferable, depending from the practical side on the ease with which the authors can obtain these corpuscles and their specific amboceptors.

41. **Typhoid Epidemic Caused by Paragaertner Organism.**—An epidemic resembling in many ways a water-borne typhoid epidemic was investigated by Robinson. A careful bacteriologic examination of feces of patients was negative for typhoid, but an organism was found which seemed to have the cultural characteristics of the paragaertner group.

42. **Complement Fixation in Acute Rhinitis.**—With the use of the bacillus rhinitis as antigen, fixation of complement was obtained by Howell with the serums of persons with rhinitis and of persons injected with the bacillus after it is killed by heat. The fixation is most marked a few days after the onset of the infection and lasts only a short time. Serums of normal persons and of patients with various infectious diseases do not give complement fixation with the bacillus rhinitis. The serums of patients with acute rhinitis do not give fixation of complement, except occasionally when suspensions of various bacteria (pneumococci, staphylococci, streptococci, influenza bacillus, fusiform, pseudodiphtheric bacilli, etc.) ordinarily regarded as closely associated with rhinitis, if not the actual cause thereof, are used as antigens. These results indicate that the bacillus rhinitis bears a specific relationship to acute rhinitis as ordinarily observed in this region.

44. **Ferments in Blood in Infectious Diseases.**—Falls claims that in the infectious diseases the ferment content of the blood is increased above the normal in most cases. Acute infections in which the reaction between the infecting organisms and the body defenses takes place outside the blood stream, cause relatively little increase in the ferment content of the blood serum, as measured by this method.

47. **Bacteriology of Rhinitis.**—The bacillus rhinitis, in Tunnicliff's opinion, has some etiologic relation to acute and chronic rhinitis on account of its almost constant presence in the nose in such cases, its general absence from the normal nose, its ability to produce rhinitis experimentally with recovery in pure culture, and on account of the production, in cases of acute and chronic rhinitis and in persons injected with the bacillus, of specific antibodies (opsonins and complement-binding bodies).

Journal of Medical Research, Boston

May, XXXII, No. 2, pp. 201-308

48 *Importance of Inflammation in Immunity of Mice to Implanted Tumor. E. E. Tyzzer, Boston.
49 *Atypical Hemorrhagic Malignant Hepatoma. E. S. L'Esperance, Ithaca, N. Y.
50 Enlarged Thyroid Occurring in Elasmobranch Fish (Squaius Suckhi). A. T. Cameron and S. Vincent. Winnipeg, Canada.
51 *Promitosis in Tumor Cells. O. T. Schultz, Omaha.
52 *Local Action of Lead. F. A. McJunkin, Boston.
53 Effect of Phosphorus Poisoning on Peroxidase Reaction of Rabbit's Liver. C. H. Bunting and P. K. Rand, Madison, Wis.
54 *Influence of Removal of Suprarenals and One-Sided Thyroidectomy on Gastric and Duodenal Mucosa; Experimental Production of Lesions, Erosions and Acute Ulcers. G. A. Friedman, New York.

48. **Immunity of Mice to Implanted Tumor.**—Tyzzer found that repeated inoculations of various tumors do not produce sufficient immunity to overcome an established tumor resulting from the first implant. It has been thus far impossible to immunize the Japanese waltzing mouse against tumor J. w. A, not only by repeated injections of large doses

of dried tumor in suspension but also by defibrinated blood or living tumor. The individuals of this variety of mice show such uniform susceptibility that the transference of the tumor from one individual to another appears not to involve any appreciable modification of the environment. The lack of immunity reaction is seen in the frequency of metastases and in the absence of instances of retrogression. This tumor as propagated in the waltzing mouse reproduces very closely, therefore, the conditions under which spontaneous tumors develop.

Implants of the Japanese waltzing mouse tumor J. w. A grow for a time as vigorously in nonsusceptible as in susceptible mice. In the former at the end of a fairly constant period of six or seven days inflammation together with degenerative changes become evident in the host tissue surrounding the tumor implant, while the latter is then secondarily affected through thus having its support of healthy growing tissue destroyed. In nonsusceptible mice which have been previously inoculated with tumor tissue, tumor implants are destroyed by a process in every respect similar to that just outlined, except that it follows soon after the introduction of the tumor tissue. Since this is accomplished more promptly, the reaction is found to be subsiding in immunized series at the time that it is just appearing in control series of nonsusceptible mice. Only living tumor is capable of exciting this reaction and as the tumor becomes necrotic the cellular infiltration quickly disappears. A similar inflammatory reaction occurs also around second implants of the Ehrlich Strain II in common mice, although these are known to be partially immunized by the first implant. This reaction is evidently based on the production in the immune animal of material which in combination with material elaborated by the tumor produces local injury to the tissues surrounding the implant and thus indirectly destroys the latter.

49. **Atypical Hemorrhagic Malignant Hepatoma.**—True hemangiosarcomas primary in the liver according to L'Esperance undoubtedly have been observed, but occur usually in early life; they are extremely rare and should not be confused with the atypical malignant tumors occurring in adult life. Endothelioma and perithelioma derived from the capillary structures of the liver are reported but without sufficient evidence, in the author's opinion, to support the view that they are true endotheliomas. True chorioma primary in the liver has not been proved to exist. The resemblance to chorioma observed in certain cases proves on analysis to be very superficial, since these tumors do not show the typical Langhans cells and syncytium as do true choriomas even when heterotopic. Primary atypical carcinomas of the liver parenchyma show wide variations in histologic structure, but usually exhibit in certain portions the definite arrangement of rows of cells simulating liver cords, with obvious transformation of hyperplastic liver cells into tumor cells.

The consideration of cirrhosis as an etiological factor in these cases does not appear to have sufficient justification. In the three cases which L'Esperance has had opportunity to study there was no cirrhosis, which rather favors the view that cirrhosis is not necessary in the development of this class of neoplasms and when present probably is of secondary importance. Reviewing these conclusions: The evidence appears very strongly to favor an epithelial origin for these atypical tumors, and it seems advisable, therefore, to classify them with the primary diffuse carcinoma derived from liver parenchyma. The term "atypical hemorrhagic malignant hepatoma" seems most suitable.

51. **Promitosis in Tumor Cells.**—The assumption of very primitive biologic mechanisms, not ordinarily possessed by normal metazoan cells, is believed by Schultz to be a characteristic feature of the cells of rapidly growing tumors. Among such mechanisms are very simple forms of division, as well as such which have always been termed atypical mitoses. Of these simpler division forms, one, which has been encountered in several varieties of malignant tumor, is characterized by the primary division of a nucleolus or, better, karyosome, the rest of the division simulating an amitosis. The participation of the karyosome in this process is believed to indicate the return on the part of the tumor cell to that condition in which the division sphere is permanently intranuclear, both in rest and in division. Other division figures, studied in a rapidly growing giant-cell sarcoma of the esophagus, would indicate that the kinetic center which has taken an intranuclear position can become temporarily extranuclear during the later stages of a form of division which simulates mitosis. Tumor cells, in their return to primitive biologic mechanisms, may be expected to show those simpler promitoses from which the mitosis of metazoan cells has been developed.

52. **Local Action of Lead.**—Within endothelial leukocytes and endothelial cells inorganic lead is changed to a compound that is soluble in albuminous fluids, in which form it passes into the blood producing a "stippling" of the corpuscles, and into liver cells producing in them a basophilic granulation. The basophilic hyaline change in both red corpuscles and liver cells, McJunkin claims, is due to the immediate presence of lead as is shown by subjecting the preparations to prolonged treatment with an alkaline sulphid. The reason for the failure to produce by the administration of lead for a few months (in the case of one monkey, eight months) lesions other than local lesions at the site of application and the basophilic granulation of the liver cells and red blood corpuscles is not apparent.

54. **Influence of Removal of Suprarenal.**—The result of experiments presented in this communication and in a previous one are summed up by Friedman as follows: 1. Suprarenal hypofunction causes lesions in the stomach in rabbits and in dogs. 2. An excess of thyroid gland, as produced by repeated intravenous injections was probably responsible for the gastric lesions of two dogs and of one rabbit (of four animals experimented on). 3. Thyroid hypofunction caused the appearance of duodenal lesions in five animals out of six. 4. An excess of adrenalin, produced by repeated injections of the drug, led to the appearance of lesions in the duodenum of dogs. 5. The simultaneous production of suprarenal and thyroid hypofunction did not lead to any lesions in the stomach, nor in the duodenum in rabbits. 6. When after removal of one suprarenal the other became hypertrophied, lesions were seen in both viscera of three rabbits and in the duodenum of one. From Friedman's experiments it seems probable that gastric lesions might be dependent on suprarenal insufficiency as well as on an excess of thyroid gland, duodenal lesions on the contrary on thyroid hypofunction as well as on excess of adrenalin. Gastric and duodenal lesions might be dependent on the alternating effect of hypofunction and hyperfunction of the suprarenals.

Journal of Nervous and Mental Disease, Lancaster, Pa.

May, XLII, No. 5, pp. 257-320

55 *Spinal Cord in Case of Isolated Atrophy of Small Muscles of Hands. M. E. Morse, Worcester, Mass.
56 *Cerebellar Syndrome. W. F. Schaller, San Francisco.
57 Angioma of Cerebellum. L. Newmark, San Francisco.

55. **Case of Isolated Atrophy of Small Muscles of Hands.**—A case of isolated atrophy of the small muscles of the hands, of uncertain etiology, occurring in a man 58 years old, of alcoholic habit is cited by Morse. The essentials of the lesion in the cord were: 1. Atrophic and degenerative changes in the nerve cells, widely distributed in the gray matter, but more prominent in the postero-lateral and post-posterolateral columns. 2. Cell losses in the posterolateral and post-posterolateral columns. 3. Vascular changes, which consist in a thickening and a mild perivascular lymphocytic infiltration, the latter being confined almost entirely to the sulcal arteries and their branches to the anterior horns. 4. A characteristic distribution, the lesion commencing in the middle of the seventh cervical and extending through the first dorsal segment.

56. **Cerebellar Syndrome.**—Of the more dependable symptoms in cerebellar disease Schaller classes ataxia of cerebellar type, asynergia, adiadochokinesis and cerebellar catalepsy; falling symptom, and variations from the normal in the functional labyrinth tests and the pointing reactions of

Bárány. Less dependable symptoms are those produced by intracranial pressure: Nausea, vomiting, vertigo, choked disks and nystagmus.

Medical Record, New York

June 5, LXXXVII, No. 23, pp. 925-966

58 *Chronic Diseases of Heart, Kidneys and Arteries. I. S. Wile, New York.
59 Economy in Study. G. Van Ness Dearborn, Cambridge, Mass.
60 Medicine of Old Testament. S. B. Blakely, Binghamton.
61 Natural History of Cancer. R. Bell, London.
62 Logical Classification of Medical Literature. A. L. Von Der Osten, New York.
63 Diabetic Type of Pyorrhea Alveolaris. D. B. Freundlich, New York.

58. **Preventive Measures in Chronic Diseases of Heart, Kidneys and Arteries.**—The various agencies which should be utilized in public health education are catalogued as follows by Wile: 1. The maintenance of a health bulletin to be distributed by mail, to be sent to schools, public libraries, to social and philanthropic agencies. 2. The development of moving picture scenarios so as to present health factors to the eyes of the public. 3. The encouragement of short sketches dealing with health problems for productions at vaudeville houses, and aid in writing them. 4. The use of posters on public billboards. 5. The organization of health exhibits in vacant stores and compact traveling exhibits for loan purposes to schools, shops, factories, churches and similar institutions. Such exhibits should be of two types, namely, a general "keep well" exhibit constructively showing how to live, and special exhibits depicting and illustrating such particular health problems, as the prevention of tuberculosis and the care of the baby, and plotted curves, photographs, cartoons, drawings, papier maché models and various other appealing exhibits will be required. 6. The maintenance of frequent press notices concerning facts necessary for public-health education. 7. The organization of a staff of capable lecturers within the department and the securing of cooperation from the department of lectures of the Board of Education with a view of increasing the number of lectures on health topics to the adult population attending the lectures at public schools. Further, the organization of a volunteer lecture corps to be recruited from public-spirited physicians, nurses, etc., interested in public health. 8. The distribution of brief, concise and to-the-point health talks to parents and industrial workers through the medium of the children of the public schools, the agents of the Metropolitan Life Insurance Company, and the secretaries of organizations, of churches, directors of Y. M. C. A. branches and such organizations as the Boy Scouts, the Campfire Girls, the state militia, and other organizations now existent. 9. The establishment of a health day to be celebrated by special exercises in schools, churches, etc., dealing with health problems. 10. Active participation in the programs of conferences on charities and corrections, to indicate the relation of various social problems to public health.

Pennsylvania Medical Journal, Athens

May, XVIII, No. 8, pp. 599-680

64 Indications for Operation for Strabismus. W. Reber, Philadelphia.
65 Arthroplasty with Report of Cases. S. L McCurdy, Pittsburgh.
66 Extraperitoneal Operation in Strictures of Sigmoid Colon. W. M. Beach, Pittsburgh.
67 Blood Pressure in Pregnancy. J. C. Hirst, Philadelphia.
68 *Surgical Treatment of Gastric Ulcer with Especial Reference to Choice of Operation. C. H. Frazier, Philadelphia.
69 Simulation of Gastric and Duodenal Ulcer by Adhesions. Duodenal Dilatation, Visceroptosis, etc., Their Recognition and Treatment. G. P. Muller, Philadelphia.
70 *Abdominal Pain, Its Significance and Diagnostic Value. J. B. Deaver, Philadelphia.
71 *Case of Perforation of Esophagus followed by Septic Infection and Ending in Recovery. G. M. Coates and R. M. Goepp, Philadelphia.

68. **Surgical Treatment of Gastric Ulcer.**—That the incidence of gastric ulcer has been constantly increasing with the introduction of methods for earlier and more accurate diagnosis is claimed by Frazier. That gastric ulcer is often a precursor of cancer has been proved conclusively; hence a review of statistics as to the incidence of the latter disease should serve as a guide in our estimation of the frequency of ulcer, and should further emphasize the importance of the early diagnosis and treatment of gastric ulcer. With the various methods now at our disposal, the diagnosis of gastric ulcer is not a difficult one; there are, of course, exceptional cases. The history should always arouse suspicion; the roentgenogram confirms in nine out of ten cases. Frazier advocates surgical intervention in chronic ulcer of the stomach and duodenum, because the effect of surgical intervention is more enduring and more satisfactory than that obtained by medical methods. The nearer to middle life the patient is, the more urgently does Frazier impress the need of an operation, for fear of cancer. Gastrojejunostomy alone, has left a trail of failures. Gastrojejunostomy with exclusion and infolding of ulcer is a distinct improvement. Transverse resection offers greatest assurance of a complete enduring "cure."

70. **Abdominal Pain.**—When, after an abdominal operation, pain makes its appearance on the second or third day or later, Deaver says, three conditions are chiefly to be considered, simple distention, peritonitis and obstruction. The pains of distention and obstruction are as a rule colicky and wavelike, while that of peritonitis is more steady, diffuse and unremitting. In the first case the pain is quite definitely related to peristalsis, but in peritonitis no such relation is observed. Peritonitis causes tenderness and muscular rigidity which are absent in distention or mechanical obstruction. The temperature is an unsafe guide but is more likely to be elevated in peritonitis and the pulse is more markedly affected in rate and volume. As between simple distention and obstruction, the difference in the severity of the symptoms is the chief guide. When the intra-abdominal conditions present both obstructive and inflammatory characteristics, as in the ileus which accompanies general and some local peritoneal infections, the difficulties are markedly increased. The most important single feature in differentiation is the character of the pain, whether wavelike and intermittent or steady and associated with tenderness.

71. **Perforation of Esophagus Followed by Septic Infection.**—The interesting features of the case cited by Coates and Goepp are the number of different septic manifestations—urticaria, pleurisy, nephritis, polyarthritis and severe secondary anemia, the rapidity of their onset and equally rapid subsidence. The prostration during the height of the attacks, that is, during the period of severe arthritis, which was the prominent clinical feature of the case, was in proportion to the severity of the nephritis and the anemia, and for a time the prognosis was regarded as extremely doubtful. The recurring attacks of intense and generalized urticaria suggest an effort at elimination of the toxins and were regarded as not altogether an unfavorable symptom. From the therapeutic point of view the gratifying effects of hypodermoclysis on the urinary elimination and the rapid repair of the blood under hypodermic administration of iron are interesting.

Southern Medical Journal, Mobile

May, VIII, No. 5, pp. 345-442

72 Wealth of Health. H. W. Wiley, Washington, D. C.
73 Neuroses in Their Relation to Chronic Infections. J. A. Hodges, Richmond, Va.
74 Duodenal Alimentation. C. Stanley, Washington, D. C.
75 Symptomatology, Etiology, Pathology and Treatment of Pellagra. J. C. Johnson, Atlanta, Ga.
76 Present Status of Typhoid Prevention in Southern Municipalities. A. W. Freeman, Richmond, Va.
77 Municipal Control of Typhoid. W. B. Foster, Roanoke, Va.
78 *End Results of Round Ligament Fixation. (Bumm's Method.) W. Kohlman, New Orleans.
79 Appendicitis — Has Last Word Been Said About It? W. L. Peple, Richmond, Va.
80 *New Method in Disposing of Stump of Appendix After Its Removal. J. H. Carter, Memphis.
81 Pituitary Extract in Obstetrics. J. M. H. Rowland, Baltimore.
82 First Aid to Injured. L. E. Burch, Nashville, Tenn.
83 Instruction of Railway Employes in Practical Application of First Aid to Injured. J. M. Salmon, Ashland, Ky.
84 Sclerocorneal Trephining in Glaucoma. W. H. Wilmer, Washington, D. C.
85 Some Results of Nose and Throat Operations in Chronic Poisoning of Heart, Lungs, Kidneys, Joint, etc. H. B. Decherd, Dallas, Texas.

78. End Results of Round Ligament Fixation.—Up to Jan. 1, 1914, Kohlman operated on 216 cases by this method. He has communicated with and examined 70 of these cases, 60 of whom were found in good condition in regard to the position of the uterus and are free of important symptoms. In 4 cases the uterus was found in retroversion complicated with moderate local symptoms. Six cases have been operated on again, and the uterus was found in normal position, the ligaments only slightly elongated; operation was required on account of recurrent disease of the adnexa. Eight patients have been pregnant since the operation, two twice, and have passed through a practically normal delivery. The cervix was found in the beginning of labor somewhat drawn to the back but conditions rectified themselves during the progress of labor. In two cases only a low forceps was employed on account of delayed expulsion. Two cases came under his observation quite recently in the eighth month of pregnancy, and so far they have progressed without any pain or discomfort.

80. New Method in Disposing of Stump of Appendix.—In Carter's method the appendix is caught near the base with a forceps and clamped, and if not ruptured, or likely to, it is left until suture is inserted, otherwise it is cut off just above the clamp and removed. Then take a suture (catgut preferred, No. 2), in a straight or curved round needle, inserting it into the bowel about ¼ of an inch from the base of the appendix and extending about ¼ of an inch beyond, the needle running parallel with the base of the appendix when it is brought out through the bowel, the suture including about one third of the appendicular base. Two more stitches are taken in like manner around the appendix causing the sutures to form a triangle around its base. As the sutures extend within the bowel, the assistant with a pair of thumb forceps pushes down on the appendiceal stump, therefore inverting it into the bowel, when traction is made on the suture and tied. After the suture is tied it is Carter's custom to place two or three Lembert's sutures over same to reinforce and at the same time cover over the small bit of catgut that is without the serosa.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, London

April, II, No. 8, pp. 517-738

1 Principles of Operative Treatment of Traumatic Cerebral Lesions. W. Trotter.
2 Operation of Rib Mobilization in Treatment of Phthisis. H. M. Davies.
3 Symptomless Renal Hematuria Arising from Tumors, Aneurysms in Renal Pelvis, Calculus and Early Tuberculosis. D. Newman.
4 *Account of Six Specimens of Great Bowel Removed by Operation; Observations on Motor Mechanism of Colon. A. Keith.
5 Operative Technic of Ileocolostomy and of Colectomy. W. A. Lane.
6 *Bacterial Activity in Alimentary Tract. N. Mutch.
7 *Roentgenologic Studies of Large Intestine. A. E. Barclay.
8 Four Cases of Ileosigmoidostomy for Relief of Constipation and Intestinal Stasis. G. Barling.
9 *Colectomy for Hirschsprung's Disease. L. E. Barrington-Ward.
10 Analysis of Consecutive Series of Cases of Various Forms of Arthritis, Treated by Ileocolostomy or Colectomy. C. H. Fagge and E. C. Hughes.
11 Operations for Intestinal Stasis. R. D. Mothersole.
12 *Homobone-Graft in Case of Sarcoma of Radius. J. H. Robertson.
13 Splenic Jaundice. H. Upcott.
14 Result of Surgical Treatment of Long-Standing Case of Congenital Equinovarus. G. Robertson.
15 Contemporary American Surgery. G. W. Crile.
16 Bacteriologic Investigation of Wounds, Skin, Etc. J. O. Hamilton.
17 Frost-Bite. C B. Lawson
18 Case of Division of Vagus, Hypoglossal and Sympathetic Nerves by Bullet, with Formation of Arteriovenous Aneurysm of Carotid. K. H. MacMillan.
19 Case of Arrested Development of Small Bowel in Man Twenty-Eight Years Old. A. MacCormick.
20 Turnip in Rectum. G. R. Petersen.
21 Case of Multiple Foreign Bodies in Colon; Operation and Recovery. H. M. W. Gray and H. R. Souper.
22 Esophageal Obstruction Due to Enlarged Thyroid. J. Halpenny.
23 An Unusual Urinary Calculus (Hairpin Imbedded in Phosphate) in Child. L. E. Barrington-Ward.

4. Six Specimens of Great Bowel Removed by Operation.—Attention is directed by Keith to the knowledge which can be gleaned from a systematic examination of such specimens as are removed by operation from patients suffering from the incurable forms of colitis and of intestinal stasis. He states that the pathologic condition cannot be explained on the simple basis of mechanical obstruction; our only hope of penetrating the secrets of the disease is a fuller knowledge of the anatomy and physiology of the great bowel, and its manner of action in health and disease. His examination has convinced Keith that the operation of colectomy is justifiable in the cases in which the pathologic conditions seem to be beyond repair.

6. Bacterial Activity in Alimentary Tract.—The main facts which are substantiated by Mutch are briefly summarized as follows: Dilatation of the duodenum is usually associated with gastric stasis. Dilatation of the duodenum varies directly as the degree of ileal stasis, and—apart from this—shows no relationship to the ileal kink. Epigastric tenderness in constipated subjects is usually experienced over the third part of the duodenum; not over the pylorus. Typical "hunger" pain may arise when food in the lower ileum produces duodenojejunal obstruction. A pure culture of a long-chained gram-positive hemolysin-producing streptococcus was obtained from the duodenum of a man with severe anemia and pigmentation. The richness of the living bacterial flora of the colon is immeasurably greater than that of the last coil of the ileum. The degree of ileal infection with coliform organisms is proportional to the degree of ileal stasis. A marked ileal kink acts as a protective barrier against invasion of the ileum by coliform organisms.

The infection of the ileum with coliform organisms and the dilatation of the duodenum vary in a parallel manner. The infection of the ileum with coliform organisms is uninfluenced by the acidity of the gastric secretions. Urine of constipated patients often contains urobilin. Urine from constipated patients often contains hydroxyphenylacetic acid. The excretion of the more complex tyrosin decomposition products varies directly as the degree of ileal infection with coliform organisms. The excretion of tryptophan decomposition products varies directly as the degree of ileal infection with coliform organisms. The excretion of indoxyl, indolacetic acid and hydroxyphenylacetic acid is uninfluenced by an infection of the ileum with streptococci or with the *B. acidophilus* of Moro. The excretion of the last-mentioned substances varies in proportion to the degree of ileal stasis.

The excretion of tyrosin derivatives is uninfluenced by hyperchlorhydria, but increased by hypochlorhydria. The excretion of tryptophan derivatives shows the same relationship to gastric secretion as does that of the tyrosin derivatives. The excretion of indoxyl, indolacetic acid, hydroxyphenylacetic acid and urobilin is almost entirely abolished by ileocolostomy. An infection of the ileum with *B. aminophilus* occurs in constipated patients with a subnormal blood pressure, but not in other constipated patients. Chronic infection of the ileum with *Staphylococcus citreus* has been shown to be present with chronic septicemia due to the same organism, and with the chronic joint, lymphatic and splenic changes classified as Still's disease. The constitutional changes and those in the joints, lymphatic glands and spleen were abolished by colectomy. Fifty-five ileums of patients without Still's disease were free from *Staphylococcus citreus.* The hands of constipated patients recover from exposure to cold at a very much slower rate than do the hands of healthy subjects. A patient with Raynaud's disease was found to be the subject of chronic intestinal stasis. In his ileum were large numbers of an unusual gram-positive bacillus and a short streptococcus. Colectomy restored his hands to a normal condition, in which they showed normal reaction after exposure to cold. His ileal flora formed pressor bases from peptone.

7. Roentgenologic Studies of Large Intestine.—According to Barclay, the ileocecal region is in very close association with the duodenopyloric region. There is evidence of two separate reflexes between the ileocecal valve and the pylorus, namely, one from the stomach to the ileocecal valve, and another from the ileocecal valve to the stomach, the latter (the ileopyloric reflex) being responsible for appendix dyspepsia. Ileal stasis is, up to a point, physiologic. Pathologic ileal stasis is usually associated with adhesions in this region, most frequently appendicular in origin. In all these examinations it is essential to prepare and examine patients on a routine plan. A scheme that includes "double" feeding is useful. The appendix can be seen in a certain proportion of cases, and, by palpation, it can be detected whether it is fixed or lying free. The normal movement of feces through the large intestine is by "mass" movement, in which a large column is moved through a long section of the colon in a few seconds; these movements take place probably some three or four times a day. The "mass" movements do not occur in the cecum.

Constipation occurs as the result of stagnation: (*a*) In the sigmoid and rectum, namely, inefficient defecation, or dyschesia; and (*b*) in the cecum, constipation proper. Constipation proper is probably the result of a defect in the mechanism of the "mass" movement. It is suggested that for the efficiency of this movement it is necessary that a sphincteric contraction should be present. The competency or otherwise of this sphincter, or *point d'appui*, determines whether the "mass" movement, when it occurs, propels all the feces forward, or sends some of them back into the cecum. The large, sloppy cecum is the result of this inefficiency, and not the cause of constipation. The opaque meal seldom gives information as to early neoplasms of the large intestine—it is only after the bowel becomes distended that information is obtained in this way. All suspected cases of neoplasm of the large bowel should be investigated by means of the opaque enema.

9. **Colectomy for Hirschsprung's Disease.**—Of seven cases—all examples of the disease in its most extreme form seen by Barrington-Ward, two patients died as the result of the operation, one from shock, and one from the effects of a severe accidental hemorrhage at the operation. Of the five remaining patients, four are perfectly healthy normal children without any distention or constipation. One has still some slight distention; but this is attributed to tuberculosis of the mesenteric glands, which has been a complication throughout. The most recent of these operations was ten months ago, and it is therefore reasonable to hope that their cure is permanent.

12. **Homobone-Graft in Case of Sarcoma of Radius.**—In Robertson's case there was a swelling the size of a tangerine orange at the lower end of the left radius. This swelling was rounded, hard, nonfluctulant, most prominent in front, and did not interfere with the movements of the wrist joint. The diagnosis of periosteal sarcoma was made, and the patient having refused amputation, it was determined to remove the tumor by a resection of the lower ends of the radius and ulna and to restore the arm by means of bone grafts. All tumor tissue was very thoroughly removed, and the wound prepared for the reception of the graft by careful hemostasis. The graft, composed of appropriate portions of bone with the periosteum and carpal ligaments, from a patient whose arm was being amputated at the shoulder, was then prepared and placed in position. The carpal ligaments were stitched with great care, especially posteriorly, and the radius was wired to secure fixation.

For some days after operation the patient had considerable pain and a slight evening rise of temperature, but the dressing was left intact until February 25, when on its removal the wound was found healed. From that time massage and passive movements were carried out daily, the arm being kept in anterior and posterior flat splints in the intervals. A roentgenogram taken at this time showed the radial graft in good position, radial deviation of the ulnar graft, and some slight rarefaction of the lower end of the native radius. When the patient was dismissed there was a slight degree of mobility between the ends of the grafted and the native bones, and movement at the wrist joint was not free. Eleven months later there was marked evidence of local recurrence of the tumor, but no metastases in the lymph glands or in the lungs. Amputation was performed above the elbow. The wrist joint had not been reformed, a firm fibrous tissue intervening between the grafts and the native carpal bones. The tumor separated the ends of the graft and native bones, and invaded the graft radius equally with the native one. The native and graft ulna were also to some extent involved. A small isolated tumor nodule was seen in the substance of the semilunar bone. Apart from tumor invasion, the grafts had all the appearance of living healthy bone.

Bulletin de l'Académie de Médecine, Paris

May 4, LXXIII, No. 18, pp. 527-557

24 Telegony a Myth. (Les viols et la télégonie.) G. Barrier.
25 Serotherapy of Wounds. (Traitement des plaies infectées par le sérum spécifique de Vallée-Leclainche.) M. de Fleurv.
26 Improved Technic for Emergency Filtration and Sterilization of Water. E. Fourneau and Lemeland.
27 *Loose Scrap of Shell Removed from the Right Ventricle; Recovery. Beaussenat.

27. **Scrap of Shell Extracted from Interior of Heart.**—This case illustrates anew the remarkable tolerance of the heart, the scrap of shell weighing 1.5 gm. and measuring 1 cm. long by 3 mm. thick. It had been in the heart for four months and a half, during which there had been dyspnea on exertion and precordial distress, especially at night, occasionally leading to syncope. Roentgenoscopy showed the scrap of metal following the movements of the heart. By moving gently and speaking slowly the young man kept his symptoms mild. There were no murmurs or other signs of anything wrong in the heart, except a thrill at the apex. The foreign body was supposed to be in the pericardium, but when this was opened it could be felt loose in the right ventricle. The myocardium was then brought out of the pericardium and two loops of silk, about 5 or 6 mm. apart, were passed lengthwise through the ventricle wall. With these the heart was held firm and the lips of the incision held apart. The spurting black blood was checked with the left index finger, while the heart was held between the thumb behind and the three other fingers in front. During the diastole the scrap of metal was seized with forceps after one ineffectual attempt. The heart was then sutured with silk. For three days the dyspnea was intense, the pulse weak and irregular, the facies drawn and pale, but the patient recovered and may now, two months later, be considered actually cured. Recovery at first was delayed by three brief attacks of cough and blood-stained sputum, evidently from embolism in the lungs. Now auscultation gives normal findings and electrocardiography shows merely a predominance of the left ventricle. (See also Paris letter, June 5, p. 1927.)

Presse Médicale, Paris

May 10, XXIII, No. 20, pp. 153-160

28 *Clinical Pictures and Treatment After Wounds of Peripheral Nerves. J. and Mme. Dejerine and J. Mouzon.

28. **Wounds of Peripheral Nerves.**—A number of illustrations are given to show the clinical pictures presented when the trunk nerve in the arm or leg has been severed or is suffering from compression or is recuperating after an operation. A number of typical cases are described, with the operative measures applied and the results to date. Any sign of spontaneous recuperation is regarded as a formal contraindication to operative measures unless the improvement is persistently restricted to sensory fibers. The necessity for respecting the nerve tissue proper in any operation is emphasized anew. Even pushing a sound nerve aside is liable to entail a tendency to paresis, pain and reaction of degeneration for a couple of months, and a regenerating nerve is even more sensitive.

Berliner klinische Wochenschrift

May 10, LII, No. 19, pp. 481-508

29 War and Venereal Diseases. (Krieg und Geschlechtskrankheiten.) K. Touton. Concluded in No. 20.
30 *When Should the Spinal Fluid be Examined in Syphilis? A. Neisser.
31 Aplasia of Left Kidney and Ureter; Frequency of this Deformity. K. Secher.

32 *Pathogenesis and Treatment of Constitutional Purpura. (Die essentielle Thrombopenie.) E. Frank. Commenced in No. 18.
33 Universal Orthopedic Apparatus. (Kombinationsapparat.) M. Wunsch.

30. **Examination of Spinal Fluid in Syphilis.**—Neisser deplores the fact that many physicians still have failed to master the technic of examination for spirochetes, so that far too often syphilis fails to be recognized in the early phases, when it can be so much more easily stamped out. It would be an advantage also if all physicians made a point of examining the serum in all cases of illness of any kind, with and without a history of venereal disease.

Examination of the fluid drawn by lumbar puncture is equally indispensable at certain times. When everything indicates that the treatment has done its work and the course can be suspended, then examination of the spinal fluid will reveal whether this is really the case. Negative findings in the fluid do not absolutely guarantee that the central nervous system is entirely free from syphilis; but at least we have done our duty in such cases.

It sometimes happens that the Wassermann persists positive, notwithstanding repeated vigorous courses of treatment. The question is, should we keep on repeating the courses indefinitely? Here, again, the spinal fluid may serve as a guide. If the findings in this are all negative, there is every probability that the central nervous system is free. If the nests of spirochetes—which are probably responsible for the persisting Wassermann reaction—are located in other organs, the outlook is not so serious, for they can almost always be acted on here by intensive treatment. Neisser's idea is, thus, that it is indispensable to examine the spinal fluid in every case, but not often, merely to decide certain special questions. Each patient has to be warned that the lumbar puncture may possibly be followed by headache for several days, compelling him to stay in bed. This headache rarely occurs if the patient lies down at once after the puncture and keeps in this absolutely horizontal plane for twenty-four hours. Neisser injects now, directly after the puncture, 10 or 20 c.c. of the patient's own serum, salvarsanized or not, and this seems to be a more certain protection against headache.

32. **Constitutional Purpura.**—The first part of Frank's article was reviewed in these columns June 12, p. 2025. He here discusses the pathogenesis of the trouble, tracing it to a constitutional deficiency in blood platelets. Hence he prefers to call it by the more descriptive term "essential thrombopeny" instead of constitutional purpura or pseudohemophilia. In treatment, arsenic and sea or mountain climate are the main reliance with the use of an extract of blood platelets, locally or possibly intravenous, to arrest the hemorrhages. The extract of blood platelets contains the lacking thrombozyme and hastens coagulation. Intravenous injections of 5 or 10 c.c. of 10 per cent. salt solution are regarded by many as one of the best means to arrest internal hemorrhage. Frank adds that an ideal treatment is by intravenous injections of large amounts of normal blood plasma, rich in platelets. The blood of the donor (400 or 500 c.c.) is caught in a vessel covered with just enough leech extract to prevent coagulation (10 mg. Hirudin to 75 c.c. blood). After it has set on ice or been slowly centrifuged, the plasma is drawn and slowly infused into a vein. If the donor is not a blood relation, the plasma should be tested beforehand for a destructive action on the patient's blood corpuscles.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 8, XLV, No. 19, pp. 577-608

34 *Industrial Accidents from the Medical Standpoint. (Zum Unterricht in der Unfallmedizin.) F. de Quervain.

34. **Industrial Accidents from the Medical Standpoint.**—De Quervain regards it as great progress that in 1912 the authorities added a course on "accident medicine" to the medical curriculum in Switzerland. Hasty examinations and certificates made out in ignorance of the fundamental principles have often led to years of litigation that might easily have been avoided. The next step is to organize most wisely the course on industrial accident medicine to supplement the workman's compensation legislation. For this the present surgical clinics should be utilized for instruction in minor surgery and in the after-care of injuries of the fingers, for example. He emphasizes that there is no such thing as surgery especially for industrial accidents; the principles are the same for all, but we may speak of special arm and leg or "extremity surgery," and for this, as for all industrial accident medicine, practical rather than theoretical training is the main point.

Deutsche medizinische Wochenschrift, Berlin

May 6, XLI, No. 19, pp. 545-576

35 Bread and Its Properties. II. M. Rubner. Concluded in No. 20.
36 *Improved Test for Occult Blood in the Stools. (Eine Verbesserung der Phenolphthaiinreaktion zum Nachweis okkulter Blutungen in den Faeces.) I. Boas.
37 War Wounds of Spinal Cord. (2 bemerkenswerte Fälle von Ruckenmarksverletzung durch Gewehrschüsse.) E. Fraenkel.
38 Canned Culture Mediums. (Prüfung der Bakteriennährböden in Konservenbuchsen nach Uhlenhuth und Messerschmidt.) A. Hirschbruch and L. Levy.
39 Adjustable Extension in Plaster Cast. (Ueber distrahierende Gipsverbande.) Meyer.
40 Fine Results of Bloodless Treatment of Congenital Dislocation of the Hip-Joint. (Die Vorzüge der unblutigen Einrenkung bei der Behandlung der angeborenen Hüftverrenkung.) W. Böcker.
41 *The Laws of Inherited Syphilis. (Infektions- und Immunitätsgesetze bei materner und fötaler Lues.) J. Trinchese.
42 Inefficiency of the Antivermin Measures in Vogue. (Unzulänglichkeit der bisherigen Entlausungsverfahren.) A. Brauer.

36. **Improved Technic for Detection of Occult Blood in the Stools.**—Boas calls attention to the advantages of the simplified technic he is now using and has found much more sensitive than the benzidin and guaiac tests, while it is fully as reliable. An acetic acid-alcohol extract of the feces is made (5 drops glacial acetic acid to 15 or 20 gm. alcohol). Then 15 drops of the phenolphthalin reagent are dropped in a test tube, 5 or 6 drops of 3 per cent. hydrogen peroxid are added and 2 c.c. of absolute alcohol, and the whole is shaken up. Half of the above mentioned acetic acid-alcohol extract is poured into a filter-funnel and this is placed in the test tube so that the filtrate comes slowly into contact with the fluid in the test tube. If there is blood present, a pink or deep red ring forms at the junction of the two fluids. He purifies the commercial phenolphthalin by reduction with pulverized zinc in an alkaline solution. For this he shakes up 1 gm. of phenolphthalin in a solution of 25 gm. potassium hydroxid in 100 gm. distilled water. When thoroughly dissolved he heats the whole in an Erlenmeyer flask, adding metallic zinc until entirely decolored, which requires one or two hours. The fluid then is cooled, brought to the original volume and filtered. The fluid then is limpid, keeps several weeks unchanged and the colorless fluid shows no change of tint on addition of acetic acid, hydrogen peroxid or alcohol. Several hundred applications of this "phenolphthalin ring test" during the last few months have confirmed its superiority for examination of stools, but this technic cannot be used for stomach content. For this he prefers the guaiac test on an acetic-acid alcohol extract of the stomach content. In conclusion he reiterates the extreme importance of the discovery of occult blood in the stomach content as a sign of gastric or duodenal ulcer.

41. **The Laws Regulating Maternal and Fetal Syphilis.**—Trinchese's conclusions from his experience at a serologic laboratory at Berlin and analysis of the literature are to the effect that Colles' and Profeta's laws were based on mistaken premises and do not correspond to the facts, as there is no paternal transmission of syphilis, the fetus does not generate immunizing substances and the placenta does not permit passage of immunizing substances from the maternal to the fetal tissues. The earlier the fetus is infected, the more rapidly the syphilis runs the course of sepsis, killing the fetus within six weeks. Until about the eighth month the fetus does not generate immunizing substances, that is, its blood responds negatively to the Wassermann test even although its tissues may be swarming with spirochetes and the mother present a positive Wassermann. In the eighth and ninth months the fetus may begin to present a weak and inconstant Wassermann reaction. If the child becomes infected first during the last few weeks before birth, there may be no

clinical manifestations of the syphilis and no Wassermann reaction as the time has been too short for either to develop. These are the children that used to be supposed "immune"; they supply the material for the cases of tardy inherited syphilis. A syphilitic mother can have a child clinically free from syphilis and with a negative Wassermann; or the Wassermann may be positive; it may have symptoms of syphilis and a positive Wassermann; or it may have symptoms and a negative Wassermann. This sequence rises from the mildest to the severest type. The last mentioned—clinical manifestations of syphilis without any indications of a Wassermann reaction—generally proves fatal.

Medizinische Klinik, Berlin

May 9, XI, No. 19, pp. 527-552

43 *War Wounds of Peripheral Nerves. M. Nonne. Commenced in No. 17.
44 *Prophylaxis of Typhus. G. Singer and others.
45 Indirect Injury of Internal Ear in War. (Schädigungen des inneren Ohres durch Geschosswirkung.) E. Schlesinger.
46 *Epidemic Parotitis. (Epidemische Speicheldrüsen- und Nebenhodenentzündung.) H. Eichhorst.
47 Emergency Sterilization of Water. (Versuche über Trinkwassersterilisation.) H. Strausz.
48 Serodiagnosis of Syphilis. (Ueber Ergebnisse der Hermann-Perutz-Reaktion bei Syphilis.) G. Stümpke.
49 *Prolonged Retention of Placenta After Abortion. (Zur Kasuistik der Fehlgeburt.) H. Walther.
50 Causes of Death of Prominent Physicians of History. (Todesursachen bei namhaften Medizinern.) H. Vierordt. Commenced in No. 17.

43. **Wounds of Peripheral Nerves.**—Nonne remarks that soldiers afford more instructive data than the shifting inmates of public hospitals, so that the next year or so will probably add much to our knowledge in regard to injuries of peripheral nerves and effects of treatment. His experience with wounded soldiers has confirmed Charcot's saying that one must suspect hysteria everywhere. He reports a number of cases in which a wound was followed by paralysis but the behavior of the tendon reflexes in the paralyzed limb was normal, and the paralysis was soon cured by suggestion in hypnosis. In nearly every one of his cases of "grande hystérie" the true nature of the disturbance had not been recognized, and the diagnosis had been cerebral, spinal or neuritic paralysis, and time and effort had been wasted on futile measures. When hysteric contracture affects a limb that has been wounded, general anesthesia may be the only means to cut out the hysteric element from the clinical picture. In short, Nonne reiterates, hysteria very often fails to be recognized. This is particularly liable among the wounded as war hysteria takes predominantly the monosymptomatic and "local" (traumatic) form. He has operated in forty-five cases of wounds of peripheral nerves, and is convinced that a nerve that has been smoothly severed should be operated on early, as soon as the complicating lesions have healed. If there is doubt whether the nerve has been divided, wait six or eight weeks to see if function returns spontaneously. If not, operate. The after-care, exercise, etc., are of extreme importance.

44. **Typhus.**—Singer appealed to our exchange to solicit communications on this subject from hygienists, and five are published here from various leading hygienists. Uhlenhuth emphasizes the necessity for keeping the "clean" quarters separate from the infected quarters. It is impossible to be too careful here; no means should be omitted to keep vermin out of the clean part. Sticky substances, bird lime, etc., may render good services here. Persons who have had typhus should be selected for the care of typhus patients whenever possible.

46. **Epidemic Parotitis.**—This term, strictly speaking, does not apply to the two cases described, as the submaxillary and not the parotid glands were the ones involved. In each case the epididymis was also the seat of an inflammatory process instead of the usual orchitis. In both cases the pulse was very slow, only 56, and during fever only 84 in one case; in the other, 70 or 80 and 92.

49. **Retention of Placenta after Miscarriage.**—Walther discusses here merely the miscarriages occurring in the fifth and sixth months, with prolonged retention of the placenta. The danger of ascending infection and of hemorrhage in such cases does not seem to be appreciated by all physicians in its true importance, and he relates a series of five cases in which physicians had been content to wait for Nature to expel the placenta, and under this direful expectant treatment serious complications had developed. In one case sudden and serious hemorrhage recurred several times after an incomplete abortion; in others there were constant losses of blood. In the other cases there was putrid and septic infection. In two of the cases the physicians had made no attempt to empty the uterus; in the others repeated but futile attempts had been made.

Walther insists that during the fifth and sixth months the placenta should be expelled within two hours after the fetus, and the physician should see that this is done, with just as much care as at term. Physicians should study the relative proportions of fetus and placenta at different ages so as to recognize when part has been left behind. Figures are quoted showing that at the fifth month the placenta averages 10 by 12 cm., and is 1 or 1.5 cm. thick, and at the sixth month, 12 by 13 cm. and 1.75 to 2 cm. thick. These miscarriage cases are often particularly difficult to manage as the physician may not be called in until late, when all that came away has been disposed of. In order to stimulate the uterus to throw off the placenta, Walther advocates quinin, which, he says, has been crowded somewhat into the background by the hypophysis preparations. In miscarriage it works much more promptly than the latter, as he illustrates by two recent examples. In one the placenta had not separated by the twelfth hour but was promptly expelled spontaneously after two doses of 0.5 gm. quinin sulphate in one hour. He warns that ergot directly promotes retention.

If the Credé does not loosen the placenta, he repeats it under general anesthesia. If there is much hemorrhage the uterus can be manipulated by pressure from without and from two fingers in the posterior culdesac of the vagina. If the physician is called late in the case, Walther advises calling in an experienced consultant, as the removal of an undetached placenta with the cervical canal closed up requires great skill. The curet is dangerous, especially a small one, as it lifts part of the placenta and opens the vessels in that location beneath and from them the woman may bleed to death before the whole of the placenta has separated. Correct management of the retained placenta after a miscarriage during the second third of pregnancy is to dilate the cervix with a tent until the finger can be introduced; then loosen the placenta with the finger. If this proves impossible, introduce an abortion forceps to the lower pole of the placenta, or, as a last resort, a large, blunt, wide curet; abrupt dilatation of the cervix is dangerous.

Münchener medizinische Wochenschrift, Munich

May 4, LXII, No. 18, pp. 609-640

51 Advantages of Systematic Regulated Gymnasium Work for Convalescent Soldiers. (Errichtung von Uebungsabteilungen fur Lazarettrekonvaleszenten.) R. D. v. Tabora.
52 Sugar Enrichment to Facilitate Detection of Meningococci in Spinal Fluid. M. Obé.
53 Intravenous Vaccine Therapy of Typhoid. (Ueber Impfstoffbehandlung des Typhus abdominalis auf intravenösem Wege.) H. Reibmayr.
54 Salvarsannatrium. J. H. Fabry and A. Fischer.
55 *Serodiagnosis by Optic Method. (Weitere experimentelle Untersuchungen über die Spezifitat der Abwehrfermente.) H. Jaffé and E. Pribram.
56 Superior Advantages of Salicylic Acid in Treatment of Acute Rheumatism. (Kann und soll der akute Gelenkrheumatismus mit reiner Salizylsaure behandelt werden?) J. Zadek.
57 *Charcoal as Dressing for Wounds. (Wundbehandlung mit Tierkohle.) E. v. K. Lenz.
58 Prophylaxis of Typhus. B. Nocht and J. Halberkann. (Vorbeugung von Fleckfieberübertragungen auf Aerzte und Pfleger.) T. v. Wasielewski, G. Wulker and W. Kulka.
59 Hygiene at the Front. (Gesundheitskommissionen im Felde.) E. Sergeois.
60 The Diet at the Front. (Winke für die Ernährung im Felde.) W. Peyer.
61 Emergency Artificial Legs. (Interimsprothesen für Amputierte.) Schaedel.
62 *Wounds of the Skull. (Schädelschüsse.) H. Thiemann. Commenced in No. 17.

55. **Specificity of Protective Ferments.**—Jaffé and Pribram declare that although the nature of the protective ferments is still a mystery, yet the fact of their specificity seems now to be well established. They report further experimental work which confirmed that the digesting properties of the serum can be arrested by heating, but it can be activated again by adding fresh serum. Even when heated to 58 C. for forty-five minutes, rabbit protective ferments thus inactivated can have their digesting property restored by addition of fresh guinea-pig serum.

57. **Charcoal Treatment of Wounds.**—Lenz reports thirty cases in which charcoal was used, and with excellent effect, in treatment of suppurating wounds. They were first cleansed with hydrogen dioxid, then gently dabbed dry with gauze after which the surface was buried under a layer of charcoal blown on with an insufflator until the whole surface was black. The dressings were changed daily, hydrogen dioxid being used to rinse off the charcoal.

62. **Wounds of the Skull.**—Among the many points emphasized by Thiemann from his extensive experience is the advisability of refraining from anything more than cleansing the wound and dressing it, until the man reaches a well equipped hospital in the home zone. The way in which the gaps in the skull grow up is astonishing, as also the absence of deficit phenomena in many cases of extensive destruction of brain tissue. In one case none were evident although one-third of the right frontal brain had been shot away; in another most of the right half of the cerebellum had been destroyed, and in another large portions of the parietal lobe and central convolutions. The extent of the primary injury of the brain does not in itself contraindicate operative treatment.

Therapie der Gegenwart, Berlin

May, LVI, No. 5, pp. 161-200

63 Typhoid Among the Soldiers. (Zur Diagnostik und Therapie des Typhus im Felde.) F. Klemperer, W. Oettinger and F. Rosenthal.
64 *Autoserotherapy of Typhoid is Ineffectual. (Zur Behandlung des Typhus mit Eigenserum.) R. Meyer.
65 *Treatment of Exophthalmic Goiter. (Gesichtspunkte zur Behandlung des Morbus Basedowii.) W. Weiland.
66 *Aluminum Acetate in Alcohol Effectual in Smallpox. (Neue Methode der Blatternbehandlung.) F. Traeger.

64. **Inefficacy of Autoserotherapy of Typhoid.**—Meyer has given this method of treating typhoid a thorough trial, and reproduces here the curves of nine cases out of a much larger experience. He followed the technic which Widal and Königsfeld have used with much success, according to their published reports, but Meyer was unable to detect any benefit from it.

65. **Exophthalmic Goiter.**—Weiland remarks that men trained to think surgically are apt to regard exophthalmic goiter altogether too much from the surgical standpoint, and internists view it from the internal medicine standpoint, while men who have had much experience are liable to follow the method of treatment with which they have been most successful in the past, without due regard to whether the present case fits into the frame of the former cases. In the present article the experiences in Lüthje's service at Kiel for the last ten years are analyzed. They confirm the necessity, with internal measures, of supplementing general treatment both physical and psychical with a diet to influence the metabolic disturbances and specific treatment of the thyroid itself. Measures in all these directions are called for usually in every case, from the mildest thyrotoxicosis to the severest type of exophthalmic goiter.

Disturbance from perverted thyroid functioning develops very insidiously as a rule. At first there are symptoms of a general nervous disturbance; the temperature is normal unless there is an underlying tuberculosis. The proportion of patients restored to full earning capacity is larger under operative than under medical measures, but the latter perseveringly applied restore full earning capacity in a larger percentage than is generally realized. Still greater benefit can be realized if roentgenotherapy is used to supplement other measures, with or without an operation. Weiland states that he has never witnessed a case in which every one of the symptoms had entirely retrogressed under surgical or medical measures or both, but we are justified in calling the case cured when the patient feels strong and well, the heart behaves normally, and there is no further restlessness, tremor or abnormal sweating, and full earning capacity is restored.

The first thing in treatment is to ensure physical and mental respose; a few days in bed benefit in mild cases as much as a few weeks in the severer forms. This repose should not be disturbed by dietetic or other restrictions, but should be utilized to tranquilize the patient's mind and obtain his cooperation in the efforts for recovery. The treatment at this time should be the same as for nervous prostration or convalescence from any sickness except that sedatives may be required to overcome severe motor and psychic unrest. In the milder cases no drugs are needed unless a prescription seems to be called for, in which case valerian might be ordered. Arsenic is also useful, but he never gives iron The diarrhea or sweats disappear spontaneously as the general condition improves. For several years it has been the practice at Kiel to give sodium phosphate in every case of exophthalmic goiter, for reasons which Weiland enumerates, and it is regarded as an essential part of the treatment. It is given in daily doses of 3 or 4 gm. in a 10 per cent. solution. Digitalis is given only under the same indications and dosage as with organic disease of the heart.

The diet should be that of forced feeding, training the patient to masticate and striving to tempt his appetite, making special use of carbohydrates and fat, possibly supplemented with some pancreas preparation. It is not necessary to push the forced feeding to bring the weight up to normal. Local applications of cold and electricity may relieve the tormenting symptoms from vascular goiters. He has not had favorable results from organotherapy of exophthalmic goiter, but has been much impressed with the benefit from Roentgen exposures. They can be applied in all forms of exophthalmic goiter. He used hard tubes, of 3½ ma. with 16 x as the maximal dose, fractioned at two sittings with a few days' interval, repeating this for three or four months, with two and four weeks' intervals.

If the weight and strength keep running down and the heart functioning growing worse, an operation should be recommended without delay but otherwise not until after a thorough course of internal measures. For operative treatment, the objective symptoms form the criterion. Weiland in conclusion emphasizes that after operative treatment the patient requires medical oversight as much as after an operation for a gastric ulcer.

66. **Aluminum Acetate in Smallpox.**—Traeger has found extremely useful for all kinds of abscesses and glandular swellings the local application of aluminum acetate in alcohol. In a recent case of smallpox he applied it also and improvement was evident at once. The fever subsided and the pustules retrogressed, scarcely ever leaving a scar. This favorable experience was repeated in nine other cases during a small institutional visitation of smallpox. Most of the patients were children and these applications reduced the pain and itching so much that the children clamored for them. He used 50 parts of the aluminum acetate to 1,000 parts of alcohol rectificatus; cotton dipped in this was laid over the face and covered with oiled silk. The chest, abdomen and back were also dressed with the same mixture, alternately during three hours. Pitting seemed to be materially checked by this simple means.

Zeitschrift für Kinderheilkunde, Berlin

XII, Nos. 4-5 pp. 227-368. Last indexed March 27, p. 1117

67 Uric Acid Content of Children's Blood. (Harnsäuregehalt des kindlichen Blutes) E. Liefmann.
68 The Luetin Test Unreliable for Children. J. C. Schippers.
69 *Associated Acquired and Congenital Diseases of the Skeleton. M. Segawa.
70 *Anomalous Roentgen Findings in Child's Thorax. T. Gött.
71 *Megacolon. (Die Therapie bei der Hirschsprungschen Krankheit.) O. Schneiderhohn.

69. **Congenital Plus Acquired Bone Disease.**—The child in the case reported in detail by Segawa was under constant observation from the day of birth to its death at eleven months. The parents were healthy except that the father is a hard drinker. The child presented typical congenital osteogenesis imperfecta, and on this became superposed both scorbutus and rachitis. The roentgenogram and the microscopic findings are compared with analogous cases in the literature. The work issues from Pirquet's service at Vienna and fills seventy pages.

70. **Anomalous Shadows in Child's Thorax.**—The puzzling Roentgen-ray findings were much alike in the two cases described but the affection was of an entirely different nature in each. In one there was an abscess from rupture of suppurating glands. In the other case there was a hard leukemic infiltration. Both processes had developed in the same tissues and in the same region in the mediastinum so that the shadows cast by both were alike. They differed from the shallow arc or rounding shadow, which Rach has described as typical of a spondylitic gravity abscess, in that the outline was longer and nearly straight. Possibly this straight instead of a curved outline of the shadow may aid in differentiation.

71. **Treatment of Megacolon.**—It is necessary in treatment to determine whether the cause of the distention of the colon is a spasm of the sphincter, or a congenitally normally large bowel, or whether it has enlarged from some mechanical bend or kink on account of abnormal length and the movability of the sigmoid flexure. Four cases are described; 2 were improved by internal measures alone and 2 by operative treatment. Adding these 4 to those found in the literature, Schneiderhöhn has compiled 358 cases of Hirschsprung's disease, and discusses the views of the various authors. The outcome is not known in 39 cases; 179 of the patients died, but the megacolon was not responsible for the death in 11 of these cases. In 110 cases a clinical cure was realized and great improvement in 24. No benefit was apparent in 9 cases. A cure was thus obtained in 30.7 per cent. of the available total, while the mortality was 43 per cent. Of the 151 treated by internal measures alone, only 38 were cured and 14 improved; 79 died, and the outcome is not known in 14 cases. In 6 no benefit was realized. Schneiderhöhn emphasizes that this unfavorable clinical record for internal measures—over half dying and only one-fourth cured—is due to inadequate or inappropriate measures or a too brief course of treatment or to the measures not being applied until irreparable lesions had been installed. Purgatives and enemas he ranks among the unsuitable measures, stating that he has found whole series of cases on record in which death followed almost at once after their application, and generally with the symptoms of acute colitis and perforation peritonitis. He cites some typical examples to illustrate this. Megacolon, he reiterates, is the manifestation of a mechanical closure of the intestinal tract which peristalsis is unable to overcome. Purgatives, enemas and coarse foods add to the distention and cause the bowel to work harder to get rid of its contents. This is liable to entail rupture at some eroded point. The parents often take the child home at the first sign of improvement, and it does not get the full course of treatment and proper aftercare. In the 143 operative cases, the mortality was 36 per cent.; the cures represent 46 per cent. Twelve different operative procedures were applied in the various cases, as he shows in tabulated form.

Analysis of all this material demonstrates that the mode of treatment must be selected for the individual case. We should not operate needlessly but neither should we delay too long with internal measures. They should be given a thorough trial first, combatting with sedatives any tendency to spasmodic contraction in any part of the bowel. If the contracted point is accessible it should be bloodlessly stretched. In other cases the bowel may be rinsed out, with ample drainage provided, reenforcing these measures with massage, electricity and a suitable diet. The above measures will often accomplish the cure if the patient comes under treatment early enough and if it is kept up systematically and long enough. Not only do the symptoms disappear, but the colon becomes reduced in size and the hypertrophied walls retrogress until the bowel functionates normally once more. Internal treatment is particularly liable to succeed in children. As they grow, the anatomic conditions approximate more and more closely to the normal condition in the adult. Of the 38 patients cured by internal measures alone, 31 were children; 12 others were improved. The proportion of children cured by operative measures is no higher than the general proportion of the cured. Of the 69 children operated on, 32 were cured and 26 died. Hence it is wise to hold back from operating on a child until internal measures have been given every chance, unless one's hand is forced by severe symptoms. When an operation is done it should be thorough and not leave conditions that will require further intervention. In a number of cases two operations were necessary; in 7, three; and in one case each, four, seven and eight operations were done. Colopexy or resection at two sittings gave the best results in the cases on record. These correspond best to the causal indications. The congenital enlargement or undue length of the loop may require resection if colopexy does not offer promise of a permanent cure.

Zentralblatt für Chirurgie, Leipzig

May 8, XLII, No. 19, pp. 321-344

72 Modification of Perthes' Compressor to Arrest the Circulation. (Zur Technik der Operation der Kriegsaneurysmen.) K. Steinthal.

Zentralblatt für Gynäkologie, Leipzig

May 8, XXXIX, No. 19, pp. 313-336

73 Radiotherapy in Gynecology. T. H. Van de Velde.

May 15, No. 20, pp. 337-352

74 Spinal Anesthesia. H. J. Boldt (New York).

Zentralblatt für innere Medizin, Leipzig

May 8, XXXVI, No. 19, pp. 293-308

75 What Communities Can Do to Ward Off Epidemics During the War. (Fürsorge der Gemeinden gegen Seuchen im Kriege.) Am Ende.

May 15, No. 20, pp. 309-324

76 *Somnambulism. (Zur Kasuistik des Noktambulismus.) J. Löwy.

76. **Somnambulism.**—Löwy thinks that there are possibly therapeutic hints in the case he reports: A young man with advanced mitral stenosis had severe congestion of the liver and kidneys, and ascites, compensation having entirely failed. At the slightest physical exertion there was arrhythmia and the much dilated heart was so incompetent that he was unable to take more than a few steps without help. The man in the next bed noticed about 1 a. m. one night that the young man's bed was empty and the nurse found at 3 a. m. that a window nearby was open. Suicide was suspected and the yard and the building were thoroughly searched in the dark, cold, rainy night but no trace of him could be found until 5 a. m., when he knocked on the outside of the window of another ward on the same floor and was taken in. He complained only of cold and fell asleep at once, and was unable to explain the occurrence when he roused. The window ledges were narrow and slippery and about one yard apart. It must have required considerable physical exertion to step from one to another, and yet for four hours the young man must have been circling the wall several stories above the ground. The pulse was found only transiently 20 beats above what it had been the day before, and the blood pressure had dropped from 115 to 110 mm. Hg: no other change could be detected. It is evident that in the somnambulistic state there are no nervous inhibitions, and hence the sum total of the work imposed on the heart by physical exertion is less. The physical exertion is made without any superfluous muscular movements, and hence makes less demands on the heart.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 6, XXXVI, No. 36, pp. 561-576

77 *Atypical Pneumonia. (Sul decorso della polmonite fibrinosa.) Nelli.

May 9, No. 37, pp. 577-592

78 Radiology and Military Surgery. V. Maragliano.

77. **Atypical Pneumonia.**—Nelli writes from his province in Italy to comment on the peculiarly severe and protracted form pneumonia assumes there, especially in persons who drink much or who are already infected with malaria. Two illustrative cases are described.

Policlinico, Rome

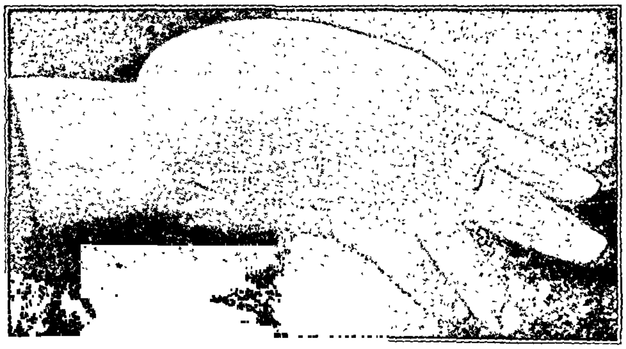
May 9, XXII, No. 19, pp. 621-656

79 *Treatment of Pernicious Anemia. C. Bartolotti.
80 Disturbances from Swallowing Air. (Aerofagia.) G. Genoese.

May, Medical Section, No. 5, pp. 193-240

81 *Electrocardiography in a Case of Congenital Defect of the Right Heart.* (Vizio congenito del cuore destro.) G. V. Ferralis.
82 *Action of Sugar on Kidney Secretion and on the Circulation. (L'azione degli zuccheri sulla secrezione renale e sulla circolazione nell'uomo.) C. A. Crispolti.
83 Indications and Contraindications for Salvarsan in Syphilitics with Other Diseases. (Arsenobenzolo nelle malattie mediche da sifilide.) T. Pontano. Commenced in No. 4.

79. **Serotherapy in Pernicious Anemia.**—Bartolotti has been impressed with the way in which the reds increased in numbers under the influence of antidiphtheria serum. This reaches its height the fourth or fifth day and then gradually declines, but never drops to its former figure. The effect is most striking when the number of reds is small to begin with. Antistreptococcus and antistaphylococcus serums have the same action but it is less pronounced than that of diphtheria antitoxin. He has also noticed that extracts of various organs have a notable influence in this line in severe secondary anemia. On the basis of these data he treated a woman of 38, with severe pernicious anemia rebellious to iron and arsenic, with antidiphtheria serum, giving four injections of 1,000 units each, with intervals of forty, sixteen and twenty-one days. A week after the first injection he commenced combined organotherapy, giving extract of spleen, spinal cord and blood, alone or combined; the daily dose was about 0.5 gm. of the extract, gradually increasing to 2.75 gm. a day and then tapering off. By the fourth day after the first injection of antitoxin the reds had increased from 823,750 to 1,618,000 and by the sixth week to 3,832,000 while the hemoglobin from 35 to 30 had risen to 90 per cent. Nearly six months after suspension of all treatment—the complete course having taken thirteen weeks—the hemoglobin was 95 per cent. and the reds numbered 5,084,000; the blood findings otherwise were also normal.



Flap taken from abdominal wall shares in obesity (Abstract 88).

82. **Action of Sugar on Kidney Functioning and on the Circulation.**—Crispolti has been studying in the clinic the application of the results of Lo Monaco's recent experimental research on the effect of sugar. He apparently demonstrated that small subcutaneous doses of sugar increase kidney functioning to a notable extent, while larger doses reduce the output of urine. The output is also reduced when the small doses are kept up for a long time. Crispolti injected intramuscularly into the buttocks 1 or 5 c.c. of a 100 per cent. solution of saccharose, and tabulates the findings in six persons with sound kidneys, the conditions of the tests about identical in all. The findings cover a period of thirty-two consecutive days in five cases and twenty days in the other case, and are tabulated under fourteen headings. The injections were made daily for a week or ten days and then suspended for equal periods. The findings show that small doses did not modify the blood pressure or the circulation, but that large doses, 5 c.c. of the 100 per cent. solution—increased the blood pressure and the pulse. The subjects also gained in weight on these large doses, showing that they have nutritional value as well. This explains Leo's finding that starving rabbits given a daily intravenous or subcutaneous injection of 1 gm. glucose survived five days longer than the controls. Crispolti found also that the sugar solution had a marked effect on the action of the kidneys, small doses stimulating and the 5 c.c. doses checking kidney functioning. Not only the total output of urine was reduced, but the proportion of urea and chlorids was also reduced. The patients were very thirsty and drank much more water than usual, and they complained of not feeling so well; they lost appetite and some had headache and nausea under the large doses. He thinks the reduced output of urine and of urea, etc., amply explains these vague disturbances under the large doses. On the other hand, diuresis was materially promoted by the small 1 c.c. doses, and the proportion of urea and chlorids also increased. With the small doses there were no disturbances, no excessive thirst, and the mouth was moist; with the large doses the mouth felt parched.

Sugar in small doses seems to dilate the blood vessels while in large doses it has a constricting action on them. This explains the cases in which hemorrhage has been arrested by injection of sugar. It also offers an explanation of the inhibiting action of large doses on diuresis; the vessels in the kidneys of course share in the general constriction. The data thus presented suggest that small doses of sugar to promote diuresis are indicated in all conditions of oliguria from various causes. Large doses, on the other hand, will prove useful to reduce polyuria in diabetes or nervous polyuria if the blood pressure is *not overhigh to start with.* While the large doses are being taken, the diet should be mostly liquid; this not only tends to prevent harm from the retention that follows the large doses, but it facilitates diuresis.

Riforma Medica, Naples

May 9, XXXI, No. 19, pp. 505-532

84 Dysentery. M. Ascoli.
85 Antagonistic Action on Peristalsis of Elements of Intestinal Content. G. Ollino. Commenced in No. 18.

Hospitalstidende, Copenhagen

May 5, LVIII, No. 18, pp. 425-448

86 Centenary of Danish Anatomist, Physiologist and Pathologist, A. Hannover. J. Fibiger. Concluded in No. 19.

Hygiea, Stockholm

LXXVII, No. 7, pp. 353-400

87 Fourfold Reinfection with Syphilis. (Bidrag till reinfektionskasuistiken.) G. Ahman.
88 *Flap from Abdominal Wall Shares in General Obesity. (Hudtransplantation med säreget resultat.) J. Strandberg.

88. **"Obesity" of the Hand.**—A girl of 12 had a defect in the back of her hand remedied by a flap taken from her abdomen. It healed in place and answered its purpose perfectly until late in life. After 30 she became obese. Then the patch on her hand increased in size proportional to the increasing thickness of the abdominal wall, as in illustration.

Ugeskrift for Læger, Copenhagen

May 6, LXXVII, No. 18, pp. 683-730

89 Total Loss of Memory and Progressive Dementia After Attempt at Suicide by Hanging. (Amnesi med fremadskridende Demens efter Suspension.) M. Anchersen.
90 Traumatic Rupture of Kidney or Intestine Without Trace of Injury on the Skin; Two Cases. H. Kaarsberg.

Correction.—The German term *Kriegstyphus,* "war typhus," refers to typhoid, not typhus. This correction applies to Titles 50 and 74 in The Journal, pages 1882 and 1949, of the current volume.

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WORK OF THE AMERICAN MEDICAL ASSOCIATION *

WILLIAM L. RODMAN, M.D.
President of the American Medical Association
PHILADELPHIA

In assuming the presidency of the largest and most important medical organization in the world, and at the time of its greatest achievements, I am overcome with humility and a consciousness of my own limitations. Profoundly grateful for so signal and unmerited an honor, I shall ask that the same partiality which placed your standard in my hands strengthen and support me until I shall have transferred it, unsullied and undimmed, into the hands of my successor.

With your help I may succeed; without it, failure is certain; therefore, grant it me in unstinted measure.

As the splendid work of the Association, carried on by its officers and several councils, has not been reveiwed by my immediate predecessors, it would seem eminently fitting that I should, at this time, attempt a retrospect of some of its most noteworthy achievements, and incidentally point out how, with your cooperation, other equally desirable results may reasonably and certainly be attained.

THE AMERICAN COLLEGE OF SURGEONS

As the American Medical Association always stands for altruism and noble endeavor, it is my first duty, as well as my great pleasure, to congratulate most heartily the officers, board of regents and fellows upon the auspicious beginning of the American College of Surgeons, its achievements and its splendid aspirations. It has already, in its brief existence, accomplished much in elevating the general tone and level of American surgery, and met all reasonable expectations of its sponsors. The college was organized to fill a distinct need, and its aims and purposes were well presented by its president, Dr. J. M. T. Finney, at the inaugural meeting in Chicago, in November, 1913, in an address which was notable for its ability, sincerity and lofty character. With a rare and keen discrimination, equaled only by the courage shown, he pointed out the weaknesses in our armor, and the professional obligation of all to overcome them. I cannot do better than quote some of his forceful words, and, further, to express the hope that every member of the profession, in or out of the college, will read and read again the entire address:

> The aim of this new organization and the reason for its existence lie in its disinterested and unselfish efforts to elevate the standards of the profession, moral as well as intellectual, to foster research, to educate the public up to the idea that there is a difference between the honest, conscientious, well-trained surgeon and the purely commercial operator, the charlatan and the quack; furthermore, that the term "surgeon" means something more than a suave manner, a glib tongue, a private hospital, a press agent, and the all too easily acquired diploma. The standardization of surgery is absolutely essential to guard the public against such as these, as well as to preserve the honor of the guild itself. So far as the public is concerned, it is necessary to protect it from the wolves in sheep's clothing, from those who would prostitute their high office for the purpose of gain; from the ignorant and the untrained; from those who by reason of the lack of surgical judgment and skill are incompetent. That such are present in considerable numbers in our profession, and that they continue to ply their nefarious trade in every community of any size, with reckless disregard of the consequences, unfortunately cannot be denied. Are we to sit idly by while the fair name and fame of our profession are being dishonored and defiled? Is there nothing that we can do to protect the public and ourselves? Our presence here this evening is an answer to these questions. The American College of Surgeons has been called into being as an active, vigorous, virile protest upon the part of the profession itself against this unhappy state of affairs.[1]

No one who impartially reviews the work of the college, conducted as it has been by officers and a board of regents of the highest personal and professional standing, can withhold from them a large measure of praise for unselfishness, devotion to the cause, and a very evident intention to be true to the highest ideals of the profession.

In every community men are operating who have no right to take human life into their hands. This does not apply to the general practitioner who, in an emergency, and to the best of his ability, operates in an attempt to save life, but to those who, for gain, undertake that which should be done only by the skilful surgeon. Surgery is a special science, extrahazardous in its nature, and hence the public has a right to demand of the surgeon the very highest physical, mental and moral equipment.

The positive stand the college has taken on fee-splitting alone more than justifies its existence. This evil has become intolerable, and a wave of protest is rising throughout the land which should, and we believe will, overwhelm the offenders. Reform is bound to come, and the public will surely take the initiative if we do not. In some states the legislatures have already enacted laws constituting fee-splitting a crime. But it is most undesirable that our problems and shame should be corrected by legislators who imperfectly understand the real conditions. Let us at once apply the axe to the root, make this nefarious practice impossible, drive from the surgical temple those who defile it, and let their names and methods be anathema maranatha. If there be those within the ranks of the college who are at this time tainted with commercialism, it was not so intended by the board of regents, and they will make short shrift of any one caught *flagrante delicto*. I hold no brief for the board of regents, but am acquainted with every one of its members, and am satisfied that the honor of American surgery is safe in their hands. Undoubtedly mistakes have been, and others will be, made. But shall we expect human prescience to do that which Christ Himself did not do? Did He not in selecting His disciples choose Thomas who doubted, Peter who denied, and Judas who betrayed Him?

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* President's address before the American Medical Association at the Sixty-Sixth Annual Session, San Francisco, June 22, 1915.

[1] Finney, J. M. T.: American College of Surgeons, presidential address, delivered at the first convocation of the college, Chicago, Nov. 13, 1913.

COUNCIL ON HEALTH AND PUBLIC INSTRUCTION

The Council on Health and Public Instruction continues to investigate health conditions, to educate the public and to foster a sentiment that will force the enactment of health laws. We are better prepared today to prevent disease and to save life than ever before; but we need the confidence and intelligent cooperation of the people before the work can be satisfactorily accomplished.

The Council is in touch with the newspapers, and since the Press Bureau was established three years ago, has issued 164 bulletins for publication in 4,900 newspapers. These bulletins are made up of extracts and abstracts of editorials and original articles from The Journal, with occasional articles on popular health topics, contributed by prominent members of our Association, but published without signatures.

Popular write-ups on medical subjects are too often but garbled statements of medical facts. Yet the daily press wishes, and has a right, to publish what the people want to read. In Kings County, N. Y., a publicity committee has cooperated with newspaper editors in working out a plan for getting truthful reports of interviews on medical topics. This scheme has worked so admirably that the Judicial Council recommended to the House of Delegates the formation of such a publicity committee in every county medical society in the country.

Another plan of the Council is to unite all of the public health organizations into a national league. With this in view, it has suggested that the various public health organizations hold their 1916 annual meetings at the same time and place. Special societies, such as those for the study of tuberculosis, cancer, infant mortality, etc., might be made sections of this national league, which would be a great advantage to them.

The Bureau of Literature has circulated pamphlets on health topics, notably on cancer, which at this time is being given great attention, not only by our Association, but by the American Society for the Control of Cancer, by a cancer committee appointed by the Clinical Congress of Surgeons of North America, by the Cancer Commission of Harvard University, and by state and municipal commissions as well, all working to the same end, namely, the enlightenment of the public as to the early symptoms of cancer, the necessity for prompt surgical intervention and the danger of running after false gods.

Several speakers connected with this bureau have told me of the large and interested lay audiences they have addressed in different parts of the country, and I myself have had a similar experience in the states of Maryland, Virginia, North Carolina, Ohio, Missouri, Illinois, Minnesota, New Jersey and Pennsylvania. I have also been assured by local physicians in the cities and towns visited by such lecturers on cancer that the results have been most encouraging, and in many instances have led to early operation where, without such knowledge, the patients might possibly not have been operated on at all. I believe that the Association has done, and can do, no better work. In addition to the agencies already named, the federal government, through the director of the census, announces a new departure which should be welcomed. When the 1914 returns come in from the United States registration area, they will be made the subject of a special monograph on cancer. The deaths will be classified under some thirty headings, instead of seven as heretofore, and according to the region or organ affected, which is the arrangement followed in the standard reports of the registrar general of England and Wales. While not germane to the cancer question, it is of interest to note that the government Public Health Service also has undertaken a new work in beginning a sanitary investigation of navigable waters, thus far confined to the Potomac, Ohio, the shores of the Atlantic and the Gulf. This promises to be of vast interest and benefit to the entire country.

Many committees have done admirable work, notably the Committee on Resuscitation from Electric Shock, who have issued a chart and booklet for use in electric lighting plants which is considered authoritative all over the world; also the Committee on Resuscitation from Mine Gases, a report of whose work has been issued by the federal government.

The Joint Committee with the National Educational Association has been engaged in a fruitful study of health problems in education which will give an impetus to sanitation in rural schools, hitherto much neglected.

The activities of the Medicolegal Bureau are still in their incipiency, and it must be admitted that on the question of public health legislation the profession is still at variance. Efforts have been made, for nearly half a century, to secure the passage of laws regulating the practice of medicine in the different states, yet we fail to agree on the most essential requirements. The Association is, however, now making a more scientific study of medicolegal questions, and has issued two pamphlets dealing with this phase of its work. Nothing, however, could be more unwise or undesirable than hasty or ill-considered legislative experiments.

PROPAGANDA DEPARTMENT AND THE COUNCIL ON PHARMACY AND CHEMISTRY

The Propaganda Department reports an increasing public interest in the matter of "patent medicine" frauds, and has issued more than thirty educational posters as well as lantern slides for popular lectures on this subject. Boards of health, clubs and newspapers are alike active in disseminating information to the public.

The aims of the Council and what it has accomplished have made an impression upon the medical profession of both England and Germany, and in the latter country an association with similar functions has been formed.

Naturally the work of the Council has aroused much antagonism on the part of pharmaceutic manufacturers and those journals which make advertising a specialty, and some drug firms have threatened the Council with legal proceedings if it published anything concerning their products. Others have already begun legal action which is being vigorously resisted by the Board of Trustees. But it is gratifying to note that other firms whose preparations are really new and of therapeutic value have voluntarily submitted them to the Council for examination and endorsement. Drugs are accepted only after most careful investigation.

The Association now has in its laboratory three chemists who give their whole time to the analysis of medicines. The Council has attempted to distinguish between medicines good and bad. In addition to New and Nonofficial Remedies describing proprietary and new drugs which are deemed worth the consideration of physicians, it has published "Useful Drugs," which contains the really valuable drugs in our materia medica. This a number of the best schools now use as a textbook. Its labors, too, have materially influenced the teaching of materia medica and therapeutics. It remains, however, for the profession to set its ban on all proprietary medicines, if the only information concerning them comes from those who manufacture and sell them.

A few newspapers submit their medical advertisements to the Propaganda Department for its opinion before publishing them. Would that the so-called independent medical journals might follow their example, and seek an opinion before advertising outrageously fraudulent nostrums in their columns.

The medical profession should realize the inconsistency of its Council working to eliminate these products and some of its journals doing their best to perpetuate them. It is absurd for us to fight self-medication on the one hand and encourage it on the other. Can we not by concerted action either stop these obnoxious advertisements or refuse to countenance the journals that carry them?

COUNCIL ON MEDICAL EDUCATION

The Council on Medical Education was established in 1904. Conditions demanded its creation, as other agencies had proved inadequate to meet a situation which had become intolerable. The moral influence of this great Association was necessary to quicken and give vital force to what had long been good intentions or ambitious dreams on the part of other and smaller organizations.

Its work has more than justified its existence; for it has, in a decade, accomplished more in the way of regulating and elevating medical education than had been done in a century; and it has been able to do this without the slightest legal power, but solely by reason of the righteousness of its cause, the high character of its members, and the wide publicity given its recommendations and acts in a journal which goes approximately to 70,000 medical men weekly. No institution could resist, much less defy, the official acts of such a body.

The profession has given the Council most cordial support, and it cannot be said that schools have been irresponsive. Indeed, when one considers the chaotic state of medical education in the United States in 1904, and then views the situation as it is today, there is cause for felicitation all around — to the Council, to the profession of the country, and to medical institutions — for so happy a consummation could not have been reached without the hearty cooperation of all.

Truth to tell, there are outside influences which have been most helpful in this beneficent work, and to them all due credit should be given ungrudgingly. The Association of American Medical Colleges, the Federation of State Medical Boards, the American Academy of Medicine and the Carnegie Foundation have at all times cooperated cheerfully, zealously and effectively. But, after all, is it not to the greater credit of the Council that it has been able, largely through the tactfulness and diplomacy of its chairman, to make use of and coordinate so many forces for good, which, while working separately, as they hitherto had done, had oftentimes, though inadvertently, pulled apart instead of together? No one who has attended the annual meetings of the Council, Federation of State Medical Boards, and College Association, held on consecutive days, in the same hall, the members of each body having the privilege of debate in all, could fail to be impressed with the admirable team work thus far displayed. To have united these bodies for effectiveness called for the ability of a wise general, and to weld and hold them together may require the genius of a field marshal.

If mutuality is to be the watchword of all, the structure must, and will be enduring; but if one body insists upon conditions and standards which do not commend themselves as both reasonable and attainable throughout the whole country, there is danger of retrogression. We go either forward or backward; the former is usually difficult, requires time, and those who are to be successful must keep ever in mind the admonition, "They stumble that run fast."

When the Council was organized in 1904, it published, as an ideal standard to which it would gradually approach, the following:

> (*a*) Preliminary education sufficient to enable the candidate to enter our recognized universities, the passing upon such qualifications by the state authorities.
>
> (*b*) A five-year medical course, the first year of which should be devoted to physics, chemistry and biology, and such arrangements should be made that this year could be taken either in a school of liberal arts or in the medical school. Of the four years in pure medical work, the first two should be spent in laboratories of anatomy, physiology, pathology, pharmacology, etc., and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics and the specialties.
>
> (*c*) A sixth year as an intern in a hospital or dispensary should then complete the medical course.

This goal has been reached, at least on paper; the ranks have been thinned, as more than a third of the schools are now *hors du combat,* and it is expedient to mark time for a while, and give those institutions which have approached the firing line at double-quick speed a chance to catch their breath.

There are many reasons why this should be done. In the first place, the standard is now as high as it should be for *all* of the schools of the entire country. An irreducible minimum has been reached, and should be honestly enforced — that is, as soon as it can be. There is, of course, no limit to a maximum that any highly endowed and exceptionally circumstanced institution may adopt for itself.

Second, the present standard of the Council (four years in an accredited high school, one year in the basic sciences of chemistry, physics and biology) is on a parity with that of Canada and Great Britain, and with European countries. What reason have we to establish a cultural standard in medicine higher than that imposed by older countries?

Third, medicine is not a thing apart, but only a link in the educational chain, and should be based upon and correlated with the secondary schools, colleges and universities of the country. Professional education, in medicine at least, has advanced much faster than our general educational system has done. Would it not be logical, henceforth, to direct our efforts toward stimulating progress in secondary education until it shall have caught up?

To make my meaning clear: We demand a four-year high school diploma, and, in addition, one year in biology, chemistry and physics of every matriculant in medicine; and this, notwithstanding the fact that many of the states are poorly equipped with *good* four-year public high schools, and that some, though having recently acquired them, are as yet without graduates. But the very states without such secondary schools, upon which we depend for the necessary cultural knowledge as a prerequisite to the study of medicine, have from one to three medical schools drawing nearly all of their students from their own state. No one knows this better, nor has any one expressed it more clearly, than did Dr. Pritchett when he said:

> To enforce honestly a four-year high school requirement would call for great firmness and self-denial on the part of the medical schools [in the South]; but to require on top of this a year of college including the sciences and a modern language is to inaugurate anew a régime of compromises and makeshifts, and to substitute an imitation of education for the genuine thing.

Furthermore, the second requirement, one year in the sciences, is no better, if, indeed, so well complied with. The high schools, colleges and universities by no means agree as to the character, scope and extent of such course, and when it should be given. At this moment their differences could not be greater or confusion worse confounded.

Fourth, it is paramount that a man complete his professional training and begin to practice by the time he reaches 25. This must appeal to every one who views the situation from a practical standpoint. To be a nonproducer, a dependent upon some one else, at an age when men can be both productive and independent, is abhorrent to the American mind, as we are sensitive upon this point and a people of action rather than doctrinaires. Therefore, the Council should keep ever before it this essential fact, and other less important requirements should weigh as nothing against it. Furthermore, there is a way to bring this about without in any way curtailing either the secondary or professional training one must have. The fault at this time is unquestionably with the secondary, and not the professional end of it. We have agreed that a course in biology, chemistry and physics is a prerequisite to the study of medicine, but we do not agree at all as to where, how and when such a course should be given. At this time it is given in the high schools, in the colleges and in the universities, and, judging from the very recent report of the committee appointed by the Association of American Medical Colleges to investigate the subject, is taught as indifferently in one place as another.

In order to meet this condition, medical schools not connected with universities, and some that are, have been compelled to take over this work so that it may be properly correlated with medicine. It should be given, however, by a separate and distinct corps of teachers, and entirely apart from the work of medical students. This system, while educationally unsound, as we must admit, became a necessity because of the unsatisfactory courses given by the various secondary schools, colleges and universities throughout the country, and, moreover, the seeming unwillingness on the part of their representatives to modify their courses in any way, either for the convenience or benefit of those intending to study medicine subsequently. And yet, these same presidents, deans and other representatives of colleges and universities seriously advise us to add another year of university work, so that sufficient science shall have been taught the prospective medical student. Why should such a demand be made only upon American medical students? No other country makes it; why then should we? To spend an unnecessary year of one's life in obtaining cultural knowledge that is, to say the most, of questionable and uncertain value to him in his profession, is worse than a crime — it is a blunder. The literary colleges must at least improve their laboratories and tuition, so far as the sciences are concerned, before they can reasonably ask that one relatively fruitless year be passed within their walls; to double the dose would certainly be a serious handicap to the student and might be fatal to our educational system. The committee appointed by the Association of American Medical Colleges has this to say in its report:

> We are forced to the conclusion that the literary colleges over the country are not giving the science subjects demanded in our schedule in their first year's curricula, and, apparently, in many instances are not giving biology and physics as regular work for a bachelor's degree.[2]

If we add to this testimony that of President Lowell of Harvard and others who have read papers at the several conferences referred to, it is perfectly clear that there is no uniformity of practice or thought among the officials of colleges and universities, so far as the scientific course is concerned. Therefore, for the present at least, it must be taught largely by the medical schools, as has long been the custom in England, where the results are most satisfactory; or there must be as has been suggested by distinguished educators, a rearrangement of the curricula of high schools, so that they will embrace a course in the sciences which will be acceptable to medical schools. This, I believe, is the very best solution of the problem, as there is no good reason why a first-class high school should not give a boy such instruction whether he intends to study medicine or not. Many of the high schools do this now, and all might be induced to make the necessary change reasonably soon. In a recent conversation with the principal of the Central High School of Philadelphia and the head of the department of science, both expressed the opinion that boys leaving the high school should be fully prepared to begin the study of medicine. Both men are entirely familiar with our modern requirements, as they have kept in close touch with the situation at all times. Professor Keller, for many years head of the science department, has been kind enough to give me, in addition, his opinion, in a letter from which I am authorized to quote. He says:

> We are satisfied that the instruction now given in our scientific course fully meets the present actual requirements for entrance to the medical schools. The work includes a comprehensive course of instruction in science, including biology, zoology, physiology, physics and chemistry, as well as in two languages, either Latin and German, or French and German.

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[2] The members of the committee making this report are all connected with universities.

> We can see no reason why the present requirements in biology, physics and chemistry should not be covered by the instruction given in any first-class high school, such as we have in the larger cities.

The reasons for giving this instruction in high schools are many. First, boys from 15 to 19 are at the very time of life when they are more interested in such a course than they would be later on at college or university, when they will, perhaps, have chosen their future vocations and wish to prepare for them specifically. Second, education is naturally a function of the state, and this is being realized more and more all the time. One has only to consult the reports of the commissioner of education at Washington to be convinced of the marvelous changes for the better wrought in a decade. In 1901 there were 8,210 secondary schools with 649,951 students, whereas in 1911 there were 13,268 such schools with 1,246,827 students.

Mr. Claxton, commissioner of education, suggests that the twelve years of elementary and high school, now grouped into eight years of primary and grammar school and four years of high school, be rearranged, making the course six years in each. Taking the seventh and eighth years as part of the high school makes it easy to begin departmental teaching in these grades, and to adopt the methods of teaching and discipline to the changing demands of the children. It also makes it possible to begin vocational education two years earlier than is now the case, which all must think desirable. Virtually nothing is lost in the primary school by such an arrangement, as teachers are generally agreed that the time spent in the seventh and eighth grades is nearly always, under the present plan, a period of marking time.

> High schools change with surprising swiftness, even in the older states. What was last year a registered three-year high school in New York often becomes this year a registered four-year high school. During the past decade a steady stiffening of the requirements for admission has occurred. Only the better high schools have been able to keep pace with these changes and to meet fully these requirements. The whole system of secondary education of a state may undergo in half a decade a thorough reorganization and uplift; the State of Virginia offers an example.[3]

I quote again from Commissioner Claxton:[4]

> Not only must the courses of instruction in all public schools be varied and differentiated to meet the varying needs of all the children of all the people, they must also be so adjusted as to give the information and training necessary for intelligent and successful employment in all standard occupations. Whatever is needed to be done for the welfare of society in city or state should be taught in the public schools, unless it can be taught elsewhere better and more economically.
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> Whatever may be the solution of the problem of vocational education, it is quite clear that two things should be held firmly in mind: (1) that all education is one thing and not many, and that vocational schools are an integral part of our common school system; that whatever may be the trade by which one makes a living, humanity and citizenship, with all their requirements, are common to all, and must be considered in the education of all individuals and classes.

In the state of Pennsylvania there were but 193 four-year high schools in 1904, whereas there are 353 reported in 1914 (of these, forty-three are in cities and 310 in counties). There are still more schools giving three and two year courses, it is true (383 of the former and 134 of the latter); but if the rapid evolution of the past decade continues, there will very soon be more high schools giving a four-year course than schools of lower grade.

Now, while high schools are undergoing such evolutionary changes, is the propitious time to make an appeal to them to arrange their curricula so as to include a liberal science course. This appeal should have additional weight because they are public institutions maintained for the advantage of all; whereas colleges and universities, being largely private corporations, are managed to suit themselves and their officers, and would naturally be less responsive to outside requests or influences. The advantages would be palpable and direct, mutually beneficial to state, municipality, secondary, higher and professional education. The state and municipality owe, and can perform, no higher duty than to furnish youths with the very best educational advantages, as all that they give in this way is thrice repaid in a quickened, higher and better citizenship. Perhaps the very best and most wholesome law which a state can enact is that making education compulsory, thereby, to a certain extent, taking the control of a child from its parents. If this right is both assumed and exercised, it should be carried out conscientiously, wisely and thoroughly, and the states, domestic and foreign, that have measured up to this obligation have secured results which have placed them far and away ahead of those which have not. In no other way can we explain the satisfactory state of medical, as well as other branches of professional education in Germany and France, for instance. There professional education is considered, as it should be, a part of a general educational system, and hence is built upon a solid foundation. The thoroughness of the German secondary school system is most admirable, and should be imitated by other countries. The French, however, have better solved the question of premedical education, which is, at the present time, the most important question awaiting solution in America. After leaving the lycée with a baccalaureate, one must, before beginning the study of medicine, take a scientific course for one year, which includes physics, chemistry and natural history. It is designated as the P. C. N. course. It is given under academic auspices, and not by the medical schools—a practice educationally sound beyond question—but the course is objected to by the teachers of medicine as being too general in its scope and not sufficiently correlated with medicine. It is, nevertheless, thorough, embracing lectures and demonstrations in the morning, and active, practical work in well-equipped laboratories in the afternoon.

In England the same distrust of college and secondary school training in the fundamental sciences, upon which medicine rests, has always been shown, and to such an extent that the Conjoint Board of London, representing the Royal Colleges of Medicine and Surgery, refuses to recognize and give full credit for any such course taken outside of a medical school. Subject, but not time, credit is given. A student from such institutions must spend at least six months in the first year of a medical school reviewing what he has already had, and going further in the basic sciences before he can enter the second year of a five-year course in medicine.[5] This action is made necessary by the rudimentary state of public, or what they call board school, education in England, and the unevenness of scientific instruction elsewhere than in medical colleges. It is thought to be the best possible solution of the problem for that country, at this time, by an able, experienced and impartial teacher who is thoroughly acquainted with educational matters throughout the world, and who is, moreover, an enthusiastic advocate of the French system wherever it is practicable.[6] So, even if it be maintained that many of the high schools will not, or cannot, give an entirely satisfactory course in the sciences, their students beginning medicine can be given subject but not time credit, as is done in England, by our medical schools. I am of opinion that the English plan, which requires that at least six months of the science course be repeated, has much to recommend it and gives better practical results than the French system. When a boy takes his scientific course in a medical school, he is already pursuing what is to be his life work, he associates with medical students, occasionally attends, and is, perhaps, inspired by, a clinic, and his work of the first year is properly correlated with that of the second; moreover, and this is of the utmost importance, he is away from the many distractions inseparable from the first year of college life, when it is not expected that he take matters too seriously, but drift with the current.

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[3] Babcock, Kendric Charles: Bull. 29, U. S. Bureau of Education, 1913.

[4] Report of Commissioner of Education.

[5] Frederick G. Hallett, Secretary, Conjoint Board, London.

In the medical school it is intensive study; in the college extensive study. I believe intensive work is better for the professional man, whereas a more diversified and widely distributed course is better for the man of letters.

The suggestion of Dr. Pritchett and Mr. Flexner that the secondary schools of Germany should include a satisfactory course in the sciences is certainly, I think, as applicable to our public schools.[7] Commissioner Claxton has shown it to be not only desirable, but also feasible in the United States, where changes are being made so rapidly in our secondary schools. Therefore, the present is the opportune time to bridge the gap between the secondary and vocational school by bettering the former and permitting a youth to begin medicine, law, engineering or other vocation before he is 20. It will then be quite possible for him to have graduated from a medical school and to have had a year's service in a hospital by the time he is 25. Then, and then only, in my opinion, will we get the type of men for whom there is a demand in the profession. To require, as medical schools do today, that part of one's preliminary education shall be in a high school, where there is confessedly no average standard for all of the states, and another part in a college or university where no greater uniformity is to be found, is, to say the least, an anachronism. We are a young nation with no hampering restrictions and traditions to fetter and hold us back when the very life of our educational system is at stake. Either the high school system should be changed, as urged by Commissioner Claxton, so that the four-year course will embrace all of the English, mathematics, sciences and languages necessary for professional enrolment, or paper credentials, which are now of relatively little value, should be given up altogether, and men accepted as medical students only after passing the necessary entrance examination.

Practically all medical teachers agree that the greatest defect with students is, and always has been, the lack of an adequate knowledge of English. Mathematics, the sciences and languages are of great importance, unquestionably; but to understand, to speak and to write English correctly is of far greater importance, and should be insisted upon as paramount. It was undoubtedly wise for the Council to omit German and French as a requirement after 1914. In lieu of them, it should strenuously insist on a more thorough preparation of students in English, and suggest that it take the place of German, which was formerly advocated by the Council, is still being taught by many schools in the premedical year, and is insisted upon by the Association of Colleges. A student can learn but little of any language, of which he has known nothing previously, in one year; yet the same time given to the study of English, and the necessary emphasis put upon it at the very beginning of his professional career, would be most fruitful. Appearance, address and correct use of English must always be among a physician's best professional assets, and to be indifferent concerning any of them certainly does not make for success.

In 1903, at its annual meeting in New Orleans, the Association of American Medical Colleges enacted into law a recommendation which had been made the year previous by President Vaughan to the effect that all matriculants in medicine should have a four-year high school diploma. A committee had been appointed at the meeting in Saratoga, and reported formally on the recommendation at New Orleans.

I had then, as now, the distinguished honor of succeeding Dr. Vaughan as president, and used what personal and official influence I could summon to put into effect his recommendation, notwithstanding the fact that it was strenuously opposed by many of my best friends and the two faculties of which I was then a member. As there were only about one third of the number of high schools in 1903 that we have now, and most of them gave one, two and three year courses, and but few a four year course, it was thought best to make the new requirement effective after July 1, 1905, and to give the student the option of an examination in lieu of a satisfactory diploma. This postponement also gave schools time to discharge all outstanding obligations to their students who had matriculated under the former standard. Some of the present difficulties were foreseen, but there was not, and should never be, the slightest sectional discrimination in an organization that is national in scope. This may be proper on the part of states, but the Association of American Medical Colleges and the American Medical Association should legislate, and have always legislated for the entire country.

There is but little doubt that the action taken by the College Association in 1903, and by the American Medical Association since the creation of its Council on Medical Education in 1904, has done much to stimulate the high school system all over the country, improving those schools which did exist, and causing states without adequate high schools to establish them. The medical profession has always exercised a wide influence on our common school system, as thousands of its members serve on school boards throughout the country, have intimate contact with educators, and can exert a wholesome influence upon them. Now is the accepted time to do it, for there are evidences of unrest everywhere. I know that it exists in Philadelphia, and that the adoption of the suggestion of Commissioner Claxton for junior and senior high schools is now being actively agitated in that city.

It is clearly the duty of the Council on Education to have, and even to publish, a list of acceptable and unacceptable medical schools; but I agree with the position taken by Dr. Pritchett, in his paper at the February conference in Chicago, that the simpler the classification the better, as fewer mistakes will be made and, therefore, heartier support accorded by all. Nice discriminations between wholly acceptable schools are unnecessary, serve no good purpose, will naturally be resented, and may lessen the usefulness of the Council. There is always danger of overdoing a good thing. For example, all will agree that the railroads of the country formerly needed regulation by state and federal government, so flagrant had been their offenses and shortcomings. But nearly everybody, certainly a majority, now think that zealousness in the best of causes went too far, and resulted in injury to the railroads, the country and the people. Hence the present reaction and undoing of much that was unwisely done.

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[6] Flexner, Abraham: Carnegie Report.
[7] Carnegie Foundation, Medical Education in Europe, 1912.

Therefore, the Council abolished "A plus" from its classification. It is proper and feasible to distinguish between schools which are acceptable and those which are not. The former have the necessary all-time teachers, equipment and hospital facilities, the latter are wanting in all of them to a greater or less extent; hence there can be no honest and intelligent difference of opinion concerning them. But, when the Council undertakes to discriminate between high grade schools, mistakes certainly will be made, as Dr. Pritchett so forcibly pointed out; for men would be more than human if they did not use all honorable means to secure the highest rating for their schools, and resent that which seems a work of supererogation, needlessly discriminatory, and inviting criticism and opposition. But while I am very clear as to both the wisdom and expediency of the present classification, I am also of opinion that it is the duty of the Council to give full credit to schools — and to make it equally prominent in its reports — which maintain a different standard from its own, be it higher or lower; and, further, to express an opinion, not only as to the ability of a school to fulfil its pledges, but also if it is consistently doing so. Standards are worse than useless if they are not both honestly and fearlessly enforced, whether the offender be strong or weak. Let others, as the prospective medical students who are most concerned, know exactly what the country offers in an educational way, and precisely where they can get it — not where it is promised. Every one knows that the catalogues and other announcements emanating from schools cannot be absolutely relied upon, as they are oftentimes the specious plea of the advocate and partisan and, if accepted at their face value by prospective students of medicine, will prove in the end both disappointing and illusory. One will hardly go to a doting parent for an unbiased opinion as to the ability, beauty and virtues of a child, nor will one seek opinion concerning a pastor from one of his devoted parishioners. It is about as wise to expect all deans who write medical and other prospectuses to spend their time in criticizing their own institutions.

At the meeting of the Council, Dec. 28, 1914, a suggestion was made, to the effect that, in addition to and following the official classification, the Council should enumerate on a separate page all those schools which require a diploma before one can begin therein the study of medicine; on another page those schools which require two or more years of college work before matriculation in medicine; on still another page those schools which require one year of collegiate work, and, on a final page, those schools which require, in addition to a five-year medical course, a sixth year as intern in an acceptable hospital. The representative of the Federation of State Medical Boards, who was present, said that this arrangement would greatly facilitate their work. I again endorse the proposition, and hope to see it become operative.

A committee, of which President Vaughan is chairman, was appointed by the Council to report a plan by which clinical teaching can be made more effective and practical. On this committee are ten of the ablest and most experienced teachers in the country, and their final report, whatever it may be, must have great influence toward controlling clinical teaching in America. The preliminary report of this committee, presented by the chairman, was read and fully debated at the meeting of the Council in February. It was a most careful, conscientious and able review of clinical teaching, showing how hospitals connected with medical colleges could be so managed as to insure to students practical, and, at the same time, most necessary advantages. Questions of general hospital management, endowment and equipment were considered, as upon them, in large measure, efficient clinical instruction must depend.

THE NATIONAL BOARD

To meet a situation which, under our peculiar form of government, has resulted in hardship, and must, if continued, cause countless embarrassments, a national Board of Medical Examiners has been organized, and will hold its first examination in Washington in October. The character and scope of this examination will be such that no state ought to, and we believe none will, deny recognition, in the fullest sense, to those who pass it.

At the same time, I wish to make it absolutely clear that such a board will not, cannot and should not interfere with the several state boards. Such an examination is for the exceptional, not the average man. It is for the man who, while young, willing and able to pass it, does so with the hope that it may prove a good investment for him in case of business opportunity, ill health in his family, or other impelling reasons which may cause him to change his location. All of us have in mind sad examples of able, even distinguished, general practitioners and specialists, who, compelled to remove from one state to another, were estopped from practicing their profession. Laws have been made, and rightly so, to restrain the ignorant and designing from imposing upon those whom the state would protect. That the state should insure the people protection in so vital a matter by placing its stamp upon medical practitioners cannot be questioned, and there is but one way in which this may be accomplished with equity and justice to all; that is, by requiring an examination at the hands of a state board of examiners. That conditions in all of the states are much better than those which existed prior to the formation of such boards cannot be questioned, for medical schools were given their first shock and made to improve by state boards, years before the Council on Medical Education was created; but the great number of states in our Union, some still maintaining multiple boards, makes a uniform standard simply impossible. Indeed, the boards of the several states not only differ in standard one from another, but the two or three boards in one state may differ as widely among themselves. Yet these differences are not only natural but also to a certain extent commendable, although especially trying and vexatious to practitioners who must move from state to state.

For many reasons a national board with power to confer a diploma carrying with it the unquestioned right to practice in any state — indeed, to follow the flag — has always been desirable, though, as yet, unattainable under existing laws. But there is a way by which such recognition may be accorded to a carefully selected and representative board, entitled of right to the confidence of the entire country, without changing the law in some states, and with but slight and immaterial changes in others. Many states have already, quite properly, given rather wide discretionary powers to their boards of examiners and invested them with authority either to recognize, or to withhold recognition from, extrastate agencies, domestic or foreign. This rests entirely with these boards, and they are governed solely by the standard of the body whose credentials are proffered. If high, they may be accepted without examination of the applicant; if low, they are rejected, and if doubtful, the candidate must be examined. No other course is reasonable. In some states the law is mandatory, and compels the applicant for licensure to be examined, in prescribed fashion, whatever his qualifications or credentials.

It should be a simple matter to induce all of the states at once to recognize a national board whose only aim is to improve the existing situation, and remedy a defect in our law and form of government, provided such board give an examination equal in every way to that required by the most exacting state in the Union. If this be done, then it becomes the patriotic duty of the several states to recognize its licentiates, just as the provinces of Canada now recognize the examination of its national Board of Examiners. There identically the same relations exist between states and general government as obtain with us, and there states' rights and jealousy of the general government prevented for more than fifty years the creation of a national Board of Medical Examiners. For several years past Canada has had such a national board, everybody is pleased with it, and all wonder how they got along without it. The president of the board explained its workings to us fully at the annual Conference on Medical Education in 1914. Shall we do less than Canada? Shall our states be less generous to their practitioners than her provinces? I do not for a moment think so.

The past fifteen years have witnessed a remarkable change in sentiment on the part of the several states toward the federal government. Many things formerly viewed, and resented, as encroachments upon the powers of the states are now not only accepted, but also eagerly sought by them or their representatives in Congress, and consequently all have been bettered. In no direction has a proposed change in our practice offered more to, and taken less from, the sovereignty of states than a properly constituted national Board of Medical Examiners will do. It proffers much; it takes nothing.

If questions of health, quarantine, pure food, the sale of narcotics, laws controlling the destruction of migratory birds, the granting of national charters, etc., have been yielded by states to the federal government — all of which has recently been done — why should there be the slightest hesitation on the part of any state to recognize the act of a national board of examiners, when by so doing it does not in the least surrender either authority or dignity? Certainly such a body, representative of the entire country geographically [illegible]l as through its public services and its leading national medical organizations, would be entitled to the same consideration—it asks no more—that is accorded a state board.

The government, without any authority in the premises, has, through the Secretaries of the Treasury, War and Navy, assented to the service upon such board of the Surgeon-General and an associate from each of these departments; and, in addition, has promised that the government laboratories, hospitals and schools for instruction may be used by the national board in conducting its examinations. The combined resources of these three government services are more than ample to meet every demand; moreover, they will insure an examination of such character as we believe to be necessary, yet is impracticable where large numbers of applicants are examined in one building, within a prescribed time, and by only a few examiners.

With the resources available to the board, a number of men can be examined in the several laboratories, some may be given a practical examination in the hospitals, while others undergo written, and still others take oral examinations, or operate on cadavers, all at the same time, but under different examiners.

An executive committee of five members is perfecting details for the first examination, which will be held from October 4 to 11, and longer if necessary, and, presumably, will be similar to that of the Conjoint Board of the Royal Colleges of Medicine and Surgery in England. An advantage, and a very great one it is, to those passing this examination, is the fact that they may subsequently become members of the Medical Reserve Corps of either the Army or Navy, if they so desire, provided that they fulfil the requirements as to age, and pass a satisfactory examination. The government gains also by the enlargement of these corps, and is insured sufficient medical officers in time of war, riot, pestilence or other exigency. Therefore, as I have intimated, it is the patriotic duty of all to support a board which can contribute so much to the national government in time of stress. Those who recall the Spanish War will vividly remember the difficulties which beset both our Army and Navy in obtaining sufficient medical officers. Many of those accepted were far from being up to the standard of the services; this I know, and, having been asked a number of times to recommend young men for the Army, remember how difficult it was to get them. I frequently discussed the matter with the Surgeon-General's office, as well as with Col. A. C. Girard, who was chief medical officer at Camp Meade, where I visited him and sent a number of contract surgeons from time to time.

The National Board has adopted the standard of the Council on Medical Education of the American Medical Association, and, in addition, will require at least one year of service in an acceptable hospital. These requirements will be rigidly enforced; that is, an applicant must give satisfactory evidence of having had the following:

(*a*) A diploma from a high school of good standing giving a four-year course.

(*b*) A satisfactory course in science, embracing physics, chemistry and biology, of not less than one year.

(*c*) Four years in a medical school of A grade.

(*d*) At least one year as intern in an acceptable hospital.

The hospital year is required for two reasons. First, no one should practice medicine independently, however well taught theoretically, until he has had prac- l training under experienced men, and this can be ·ed only in a hospital. Some colleges require it graduation, and some states demand it before ·e.

Second, I think it most desirable that those who pass the examination should have the option of becoming members of the Reserve Corps of the Army or Navy; but to insure this, all requirements must be met. A year's internship in a hospital is required by both the Army and Navy.

While the amount of the fee to be paid by each applicant taking the examination has not, as yet, been determined by the board, there is no doubt that it will be much in excess of that charged by state boards, yet less than the amount charged by the Conjoint Board of England (£42). In America distances are often great, which may, with some, add materially to the expense of taking the examination in Washington; and, over and above the fee paid the national board, every one must also pay the usual fee for registration in the state of his adoption. Recognition of one's qualifications to practice medicine and surgery, by a given state board, by no means absolves one from paying the customary fee, just as though one were examined. To be excused from examination is all that can be reasonably expected, and this must be considered a courtesy, not a right.

As to the personnel of the board, I can say that there will probably be fifteen members, several not having as yet been appointed. All sections of the country are to be represented. As at present constituted, the board consists of: Admiral William C. Braisted, Surgeon-General, U. S. Navy, chairman; Major-Gen. William C. Gorgas, Surgeon-General, U. S. Army; Gen. Rupert Blue, Surgeon-General, U. S. Public Health Service; Col. Louis A. LaGarde, U. S. Army, treasurer; Asst. Surg.-Gen. W. C. Rucker, U. S. Public Health Service; Commander E. R. Stitt, U. S. Navy; Dr. Herbert Harlan, representing the Confederation of State Boards of Examiners; Dr. Isidore Dyer, representing the Association of American Medical Colleges; Dr. E. Wyllys Andrews, representing the American College of Surgeons; Dr. Lewis B. Wilson, representing the Mayo Foundation; Dr. Victor C. Vaughan, representing the American Medical Association; Dr. William L. Rodman, secretary, representing the American Medical Association.

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Extermination of Sleeping Sickness on Prince's Island.—Portugal is rejoicing that the prompt and thorough measures taken by the national public health service have apparently stamped out sleeping sickness from its colony on the island do Principe, west of Africa, where it seemed to have established a permanent foothold. The glossinas have apparently been exterminated from the island, and the thirty uncured persons are isolated in a state hospital under the direct supervision of the public health authorities. The medical mission that has been in charge of the work has appealed to the central authorities to refuse admission to the island to persons and cattle from infected countries, and to require notification of every case of trypanosomiasis that may develop. Cattle raising should be restricted to the southern part of the island, and hog raising should not be allowed anywhere. The number of dogs should also be restricted. The commission did not limit its work to sleeping sickness, but instituted a general educational campaign in hygiene which the *Medicina Contemporanea* describes in detail.

THE NATURE AND TREATMENT OF BRONCHIAL ASTHMA *

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Until about five years ago, the nature of this distressing affection was a matter for considerable discussion. The very terms applied to it attest the uncertainty regarding its pathogenesis. Thus it was called bronchial, spasmodic, nervous and idiopathic asthma. The appellations "nervous" and "idiopathic" have reference to its obscure causation, while the terms "bronchial" and "spasmodic" denote rather an attempt to define its pathology, if, indeed, it possesses any definite pathology. By some writers the dyspnea was believed due to spasm, but even among these advocates, complete agreement did not exist. Hyde-Salter, Biermer and others argued in favor of spasm of the bronchioles, while Wintrich and Bamberger stoutly maintained inspiratory spasm of the diaphragm to be the condition responsible for the respiratory distress. On the other hand, Weber contended for a fluxionary hyperemia as the essential nature of the asthma. Then we find the Curschmann spirals or the Charcot-Leyden crystals advanced in proof of bronchiolitis as the cause, or rather as the pathologic condition present.

In the consideration of the etiology of this malady, it was believed that heredity played a conspicuous rôle, as shown by asthma in both parent and child. This was especially true in those cases which developed in early life. In all cases a marked nervous influence was believed to exist and to account for the development of the asthma in later years of life and in those asthmatics whose paroxysms were evoked by psychic or emotional impressions or by the wetting of the feet, as cited by Hyde-Salter. Then came the announcement by Hack and others that some cases of asthma were cured by operation on and removal of intranasal abnormalities, as spurs on the septum, etc. The relief afforded in such cases was accidental and led to no intelligent or scientific conception of the actual nature of the disease.

The treatment, accordingly, was purely empiric, and aimed especially at the relief of the paroxysm or at its avoidance. Atropin was vaunted by Trousseau, while potassium iodid was praised by others. For the relief of the paroxysms themselves, asthma powders, morphin, ether, etc., were employed without any intelligent conception of their mode of action aside from the belief that they overcame muscular spasm.

Such, in brief, was the unsatisfactory state of our knowledge and of our therapeutics of spasmodic asthma up to 1909. In that year, Auer and Lewis published an account of their experiments on guinea-pigs by the intravenous injection of fatal doses of horse serum or edestin, and of their discovery that death was due to asphyxia from inspiratory distention of the lungs. In short, it was found that anaphylactic shock in these animals manifested itself as a typical picture of bronchial or spasmodic asthma. Moreover, it was proved that the result was the same when the vagus nerve was cut, the spinal cord and medulla destroyed and powerful artificial respiration was instituted. That the lungs were acutely overdistended with air was shown by even small portions of them floating on water and crepitating distinctly on palpation. The experimenters concluded, therefore, that the extreme distention of the lungs was owing to tetanic contraction of the circular muscles of the fine bronchioles and alveolar ducts, and that this muscular spasm was of peripheral, not centric origin. Lastly, it is noteworthy that they found that a hypodermic injection of from 0.5 to 1 mg. of atropin was capable of preventing death from a dose of the foreign protein which proved fatal in the controls.

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* Read before the St. Louis Medical Society, Feb. 13, 1915.

The foregoing observations on animals called attention to certain facts reported of the effects of serum injections, for example, diphtheria antitoxin, on persons who were sufferers from what is known as "horse asthma." In several instances, persons who had been sensitive to emanations from horses displayed, on receiving the preparation of horse serum, alarming symptoms which in a few cases resulted in death. Accordingly, it was suggested by Rosenau and Anderson, S. J. Meltzer and others that bronchial asthma in human beings might be a phenomenon of protein sensitization, or anaphylaxis, as it is commonly called. Impressed by this suggestion, I studied cases of asthma from a different point of view and soon became an ardent advocate of this conception of the nature of this distressing complaint.

Some of the cases which I shall refer to seem to set forth clearly the applicability of this theory to the etiology of asthma; but let me now present some of the facts regarding anaphylaxis as stated by Victor C. Vaughan in his contributions to the relationship between protein sensitization and disease or immunity.

When a protein foreign to the animal economy enters the circulation, certain body cells generate a proteolytic ferment which attacks and destroys the invading substance. This holds true whether the protein be bacterial or some stable body as egg albumin, the pollen of plants, horse serum or the emanations thrown off from animals, etc. According to Vaughan, this foreign protein, whatever be its source, contains two principles, of which one is toxic and in large enough doses may cause death, while the other sensitizes the animal and is characteristic of the protein. If the protein be introduced at short intervals and is not of an overpowering amount, the cells of the host split it up successfully, and immunity is established. But if the protein be introduced a second time after a period of two weeks or longer, and if it be in a considerable dose, the phenomena of sensitization or anaphylaxis occur.

Furthermore, the proteolytic ferment generated by the body cells is specific for that particular protein which called it into being and for no other. Moreover, the protective cells are capable of generating proteolytic ferments against as many different kinds of proteins as gain access to the blood. Consequently, an animal may become immune against or sensitized to a number of foreign proteins. Again, the body cells appear capable of storing up for an indefinite time, perchance for months or even years, their specific proteolytic ferment, so that a person sensitized to horse serum, for example, in the form of diphtheria antitoxin, may display the phenomena of anaphylaxis on a second administration of the antitoxin or other serum years subsequent to the initial injection. Lastly, the cells of the parent which have generated or stored up a specific proteolytic ferment seem capable of transmitting to the offspring the sensitization of the parent. In this way can be explained the liability to asthma, for instance, observed in several members or several generations of a family.

Finally, it should be borne in mind that the atrium or focus through which a foreign protein may gain access to the animal body may be varied. That is, the avenue of entrance may be parenteral, as an infective focus in the nose, throat, mouth, abdominal cavity, etc., or it may be through the digestive tract. In the last case, the sensitizing agent may be introduced in the form of some article of food, as cheese, shellfish, etc. Ordinarily the protein of the diet is absorbed as amino-acids which are again reconverted into that particular form of protein capable of utilization as nutriment by the body cells. But if, through some defect in digestion, a protein, as of lobster, does not undergo complete solution into amino-acids, and some one of the intermediate products is absorbed, it sensitizes the individual. Then if, after a sufficient lapse of time, twelve days or more, the same article of food is eaten and again passes into the circulation before its complete conversion into amino-acids, it occasions the phenomena of anaphylaxis, as, perchance, urticaria or an attack of bronchial asthma. It is only in this way that we can account for a paroxysm of asthma after an unusually hearty meal or the indulgence in some particular article of diet.

So many and varied are the causes that excite or precipitate an asthmatic seizure that at first thought it may seem absurd or impossible to explain their action on the basis of anaphylaxis. There are few complaints that display such apparently puzzling vagaries. Thus, one asthmatic declared he was sure to experience an attack if he slept on a pillow of goose feathers. The sensitiveness of some sufferers to emanations from horses or cats is well known. Hyde-Salter enumerates among the exciting causes a wetting of the feet, sudden emotion of grief, as in one instance in which an asthmatic learned of the unexpected death of his wife, an indigestible meal, constipation, the appearance of the menstrual function, etc. In some cases the sufferer may be unable to ascribe his attacks to any special exciting cause. Again, there are some asthmatics whose paroxysms of dyspnea come almost periodically after intervals of practical freedom from the attacks of their enemy. In others, the dyspnea is never wholly absent, being associated with the evidence of chronic bronchitis and becoming intensified at times into typical paroxysms of asthma. The state of the latter patients is truly pitiable, and it is these that tax our therapeutic resources to the utmost.

If, now, spasmodic asthma is to be explained on the hypothesis of protein sensitization, then we must assume the existence either of a focus in the body from which the foreign protein is absorbed, or that at some period, perhaps in childhood, protein sensitization occurred or that sensitiveness to a special protein was inherited from a parent, whether the protein be thrown off by animal, fowl or plant.

It might very naturally be asked why one individual shows his protein sensitization by a paroxysm of asthma while another does not, but instead may develop urticaria. At first sight this difference in reaction seems to contravene the claim made for the anaphylactic nature of asthma, or that this lack of uniformity warrants the inference of some specific asthma-producing protein. One cannot account for this difference except on some such hypothesis as a neurosis or perchance inherited sensitization, notwithstanding the fact that the experiments of Auer and Lewis show asthma in guinea-pigs to be independent of any influence on the part of the nervous system. Certainly anyone treating an asthmatic sufferer must gain the impression that neurosis plays an important part in the complaint.

On the other hand, experience with autogenous vaccines seems to indicate that the anaerobic bacillus discovered in the sputum of the case to be cited is in reality the *causa peccans*. At all events, in all of my cases to date this organism has been found, and has seemed to be the agent which in the vaccines did the most good.

Various foci may be the source whence protein is absorbed. Nasal polypi are not uncommon in asthmatics, and are thought responsible for the dyspnea through reflex bronchial spasm or hyperemia. But how explain the connection on the same hypothesis between asthma and chronic cholecystitis? A physician who had suffered from asthma for sixteen years at length developed symptoms due to gallstones. Believing that this condition still further increased the injury to his heart likely to result from his asthma, he decided on drainage of his gallbladder. This was done successfully, and to the surprise of both patient and surgeon, was followed by a remarkable effect on his asthma. So long as drainage of the gallbladder was maintained, the physician was free from his old enemy, and for the first time in sixteen years was able to remain at home and pursue his practice during the winter. When, however, drainage was allowed to cease, the asthma returned, but in a less severe form. The present state of this patient is not known to me.

How can this be explained on any other ground than that of absorption of a foreign (bacterial) protein? The same explanation holds with regard to nasal polypi. They are symptomatic of chronic ethmoiditis, and their presence in the nasal fossae interferes with free secretion, and hence favors absorption of bacterial protein from the ethmoid cells or from the nasal passages. Their removal does the same thing as did drainage of the gallbladder. This is attested by the fact that radical operation on the ethmoid by curettage has been followed in more than one instance by marked improvement, if not cure of the asthma.

Whenever, as reported by Hack thirty years ago, asthma is lessened or cured by the removal of intranasal abnormalities, it is because better drainage is secured and protein absorption is prevented. In like manner, when Hyde-Salter observed asthmatic attacks to coincide with menstruation, it is not unlikely that some condition such as pyosalpingitis existed, and menstrual congestion interfered with drainage and promoted absorption of bacterial proteins.

We now come to the consideration that in cases of long standing there is quite sure to develop a chronic bronchitis which of itself gives rise to cough and dyspnea even when positive spells of asthma are not present. It is this condition which sometimes accounts for the failure of complete cure following many operations on the nose or accessory parts. When chronic bronchial catarrh exists, careful examination of the sputum by cultural methods discloses various and often numberless bacteria. So long as expectoration is free, absorption is hindered; but whenever cough tightens, ample opportunity is afforded for absorption of bacterial protein and for the phenomena of protein sensitization in the form of asthma. This is well shown by the following case, which illustrates also the sort of treatment likely to prove efficacious in accordance with our newer conception of the disease:

Last July I saw a man who had suffered from asthma for two years, and for two months had been confined to his bed. He was unable to lie down, and physical examination disclosed the typical picture of bronchial asthma: short and ineffectual inspirations with prolonged expirations, chest distended and filled with whistling, wheezing râles that were audible at some distance, a dilated right ventricle and tense, accelerated, somewhat arrhythmic pulse. Cough was difficult, and expectoration scanty and tenacious. Close questioning could elicit no history of a primary focus save that he had catarrh and one loose tooth. He was told to apply epinephrin ointment to the inside of the nose, and was given a prescription containing among other things tincture of lobelia and fluidextract of *Grindelia robusta*. A nose and throat specialist was sent to examine the upper respiratory tract, but no condition that might explain the asthma was found. Next his loose tooth was extracted, and disclosed a small alveolar abscess which was thoroughly evacuated. Vaccines were prepared from the pus of this abscess, but owing to neglect or misunderstanding were never administered.

During this time the man was not under my personal observation, but had been removed to a hospital, and was not again seen by me until late in September. The man had improved after the cure of the alveolar abscess so as to be able to get out on pleasant days, but still suffered with asthma every night. At this time the heart was not much dilated, but the lungs were still filled with numerous dry and moist râles of chronic bronchitis. Accordingly, it was decided to have cultures made from his sputum and vaccines prepared. Rosenow did this work for me, and reported a few fusiform anaerobic bacilli in preponderating numbers, but also pneumococcus, *Streptococcus viridans* and *Streptococcus haemolyticus*. The anaerobic bacillus emitted a somewhat offensive odor, and was believed to be the real offender. Nevertheless a mixed vaccine was prepared, and of this, 0.1 c.c., or 2 minims, was injected. When the man reported after three days for a second injection, he asserted that he had lost his nocturnal asthma after the initial dose of vaccine. In all, about twelve injections were given in gradually increasing doses at intervals of from three to five days, with the result that he not only experienced entire relief from his asthma, but his bronchitis had vanished and he declared he felt perfectly well.

Convinced as I am of the anaphylactic nature of bronchial asthma, the foregoing case seems to me to point the way to the successful management of many if not most instances of this hitherto baffling malady. The first step, of course, is the discovery and removal if possible of the focus from which the protein is absorbed when, as in the case just narrated, this exists in the body of the patient. If, as in some individuals, the asthma is evoked by emanations from an animal or other extraneous source, we can do no more than try to protect against exposure.[1] It is probable that most asthmatics have some abnormality within the nose, accessory cavities, throat or mouth. This defect either furnishes the foreign protein or, if in the nose, obstructs nasal secretions and so favors the growth and absorption of bacteria. Consequently all these possible foci, and especially the ethmoid and teeth, should be painstakingly examined by a competent and wide-awake specialist. If these parts, nose, sinuses, tonsils, teeth and jaws are negative, as proved if necessary by the Roentgen ray, then search should be made in all other parts of the body, and no possible source of infection overlooked. A most minute inquiry into the history is often of the greatest value. Thus I recall a young woman whose asthma was found to have developed not long after what she called a cold, but which coryza had been attended by a profuse purulent discharge. This information led the way to a proper investigation, and a chronic ethmoiditis was discovered.

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[1] The establishment of immunity to horse serum or pollen of plants is being attempted and may yet become a positive therapeutic measure.

In some cases, it may be a chronic bronchitis or a patch of pulmonary fibrosis with atelectasis that is furnishing the bacterial protein. In such a case, or when operative procedure has not wholly rid the system of infection, a vaccine should be prepared from the sputum or other discharge, and injected under proper precautions. Some cases will yield readily to such treatment, but others may be met in which repeated cultures and vaccines will be required, for in some cases of bronchitis the chief offending germ may not be at first obtained. Such an instance, now under observation, has proved most perplexing and disappointing.

Perhaps, some one might say, treatment by means of autogenous vaccines may be all right, but what are we to do for relief of the paroxysms while vaccines are being prepared or until our exhaustive study of the case has revealed the original cause of the trouble? This is a proper question, since our therapeutic ingenuity is often sorely taxed. There are a few old and tried remedies which are now known to be antagonists to anaphylaxis and the action of which is explicable on this theory. Thus Trousseau almost a hundred years ago recommended atropin as a preventive, and, singularly enough, Auer and Lewis discovered that from 0.5 to 1 mg. of this remedy injected into guinea-pigs would mitigate or prevent anaphylactic shock from doses of protein that proved fatal in the controls.

Besredka, according to Vaughan, states that alcohol and narcotics exert transient and slight prophylactic effect against the symptoms of protein sensitization. This probably explains the short-lived freedom from an attack which some asthmatics find from whisky, as well as the prompt amelioration usually afforded by a hypodermic of morphin or heroin, etc.

Ten minims of a 1:1,000 solution of epinephrin thrown under the skin are in most cases highly efficacious, and probably possess transient antispasmodic or antianaphylactic power. Pyridin, ethyl iodid and the highly vaunted asthma powders act in the same way very likely, while at the same time they excite bronchial secretions. Tincture of lobelia, aspidospermin, ipecac and *Grindelia robusta,* or other expectorant remedies may be of service by promoting expectoration and thereby lessening absorption of bacterial protein when there is extensive bronchitis. A patient of mine was completely free from his asthma for three weeks after having been etherized for a tonsillectomy, but got his asthma again so soon as he contracted a coryza.

To my mind, no line of management offers so much promise of cure of this obstinate malady as does the administration of autogenous vaccines, in addition to the discovery and removal if practicable of the source of the protein absorption; but the rub comes in the detection of the focus or foci of infection. Patience is required on the part of both patient and doctor, and we should not hesitate to call in the service of experts in some special line of surgery, as rhinologists, in our aim at a thorough investigation and treatment of the case. Therefore, the initial step in successful management is a correct diagnosis.

77 East Washington Street.

THE TREATMENT OF INFANTILE PARALYSIS

PRELIMINARY REPORT, BASED ON A STUDY OF THE VERMONT EPIDEMIC OF 1914*

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In the fall of 1914, I was asked by the State Board of Health of Vermont if I would undertake on their behalf the treatment of the cases of infantile paralysis occurring there in the summer of 1914, of which there had been 293. A private citizen had given to the State Board of Health a certain sum of money to be expended on an investigation into the epidemiology of the epidemic and on the treatment of the affected persons. Dr. Simon Flexner of the Rockefeller Institute consented to take charge of the epidemiology end of the inquiry, and I embarked on the enterprise of the treatment of these cases in December, 1914.

The problem of the treatment of so large a group of cases was of itself a new and difficult one. The physicians of these cases were notified by the State Board of Health of certain centers where clinics would be held, and I made five trips to Vermont, spending two days at a time there, for the purpose of prescribing treatment. Cases were grouped in Burlington, Barton, Montpelier, St. Albans and Rutland, the local hospital in each instance being utilized for the purpose, and to each of these places I went with my senior assistant, Miss W. G. Wright, and investigated and prescribed for the cases by groups. Every possible facility was afforded to me for this investigation, and the work everywhere was made easy and agreeable by the interest and cooperation of the physicians and by the very efficient assistance of the State Board of Health.

There applied for treatment at the clinics 235 cases, but a certain number of cases of other years were brought for advice, and a certain number of cases of other paralyses were brought, cutting down the number of the 1914 cases to 149, and it is from these 1914 cases that the conclusions presented are drawn.

All patients were stripped, and the muscles were individually tested as to function. Cases in babies, which could not be examined in this way, are not included in the report. The muscles were classed as wholly paralyzed, partly paralyzed, and normal. By wholly paralyzed is meant that no response could be elicited from a voluntary attempt to contract the muscle either in a contraction of muscular fibers or tightening of the tendon.

The condition of each muscle was then marked on charts, which I originally obtained from Dr. E. A. Sharpe of Buffalo, and these charts form the basis of the following analysis.

NATURE OF THE PARALYSIS

It became evident that partial paralysis was much more common than total. Of 1,452 muscles affected, 416 were totally paralyzed and 1,036 partly, that is, the relation of partial to total paralysis was as 2.5 to 1. The ratio of partial to total paralysis varied in individual muscles, a matter to be discussed later.

A curious phenomenon was several times observed, where part of a muscle was paralyzed and the other part not. This was observed in the deltoid muscle, where the anterior or posterior half might work independently of the other, and once in the pectoralis major, where the sternal and clavicular parts were separated by function.

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* Owing to lack of space, this article appears in The Journal in abbreviated form. Reprints of the complete article may be obtained from the author on request.

The predominance of partial over total paralysis is of importance. The reason for it would seem to lie in the grouping and relation of the nerve cells in the anterior cornua of the cord. These cells lie in longitudinal bundles, which are naturally largest in the cervical and lumbar enlargements.

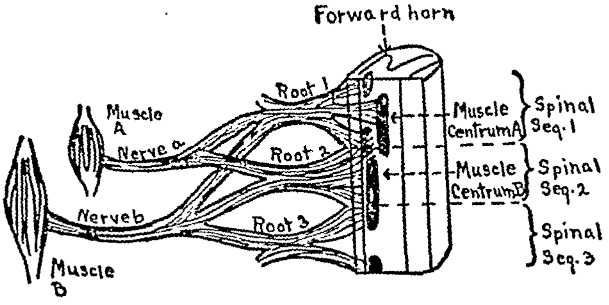

Fig. 1.—Radicular and peripheral muscular innervation. Muscle A supplied by segments 1 and 2; muscle B supplied by segments 1, 2 and 3 (Bing).

I quote from Bing:[4]

> Each contains fibers from several anterior roots, and, conversely, each anterior root distributes its fibers among several peripheral nerve trunks. . . . Anterior nerve root lesions, on the other hand, unless very extensive, merely weaken and do not completely paralyze the muscle, owing to the fact that as a rule the muscle is innervated from several roots.

Moreover, we must remember that the poison of infantile paralysis apparently reaches the cord by means of the circulation, and that the main blood supply is from the anterior spinal artery, horizontal branches from which enter the cord at each side at different levels, about 200 in number. The planes of destruction, therefore, are likely to be transverse, while the lines of nerve center association are longitudinal, so that in the case of a muscle which derives its innervation from a group of nerve cells occupying several segments, a transverse lesion may well leave certain centers intact, and some power may remain in the muscle.

This matter of partial paralysis is most important in the matter of treatment, as we shall see when we come to discuss the therapeutic measure of muscle training, because in such muscles there remains some initiative, and with it the power of developing more muscular volume and new associations by repeated passages of impulses from brain to muscle.

AFFECTION OF INDIVIDUAL MUSCLES

A tabulation was next made as to the affection of individual muscles, which shows that they were affected either partially or totally in the degrees indicated in Table 1. This table gives the number of total paralyses of each muscle, the number of partial and total paralyses, and the proportion of total to partial in each.

The main facts are that the quadriceps, gluteals and gastrocnemius lead in frequency, and that paralysis of leg muscles is much more frequent than of arm muscles. Abdominal paralysis existed in more than half of all the cases (seventy-nine), and affection of the muscles of the spine in more than a quarter (forty). The latter points have a distinct bearing on the occurrence of scoliosis, and indicate, I believe, that such affections are more common than had been supposed. The cases of abdominal paralysis were always symmetrical with two exceptions, one right and one left. This paralysis may occur as the only paralysis in the entire muscular system. When associated with paralysis of other parts, the association is always with leg muscles.

TABLE 1.—DEGREE OF AFFECTION OF INDIVIDUAL MUSCLES

Muscle	Number Paralyzed	Number Partial	Number Complete	Proportion of Partial to Total
Adductors	68	52	16	3.2: 1
Gluteals	133	106	27	3.9: 1
Flexors of hip	81	63	18	3.5: 1
Quadriceps	152	119	33	3.6: 1
Hamstrings, outer	97	66	31	2.7: 1
Hamstrings, inner	95	73	22	2.7: 1
Gastrocnemius	128	88	40	2.2: 1
Tibialis anticus	119	53	66	0.8: 1
Peroneals	96	40	56	0.7: 1
Deltoid	57	45	12	3.7: 1
Trapezius	49	42	7	6.0: 1
Infraspinatus	17	8	9	0.9: 1
Pectoralis	29	22	7	3.1: 1
Biceps	31	24	7	3.4: 1
Triceps	28	22	6	3.6: 1
Abdominal	79	64	15	4.3: 1
Latissimus dorsi	49	40	9	3.4: 1
Spinal	40	36	4	9.0: 1
Flexor carpi ulnaris	16	12	4	3.0: 1
Flexor carpi radialis	16	11	5	2.2: 1
Extensor carpi ulnaris	19	14	5	2.8: 1
Extensor carpi radialis	18	13	5	2.6: 1
Opponens pollicis	12	9	3	3.0: 1
Extensor pollicis	23	14	9	1.5: 1
	1,452	1,036	416	

The tibialis anticus and gastrocnemius are the only leg muscles which have been found to be affected by themselves without paralysis occurring elsewhere in the body. Of the former muscle, there were five cases of paralysis, of the latter three. Deltoid paralysis may occur alone in the arm.

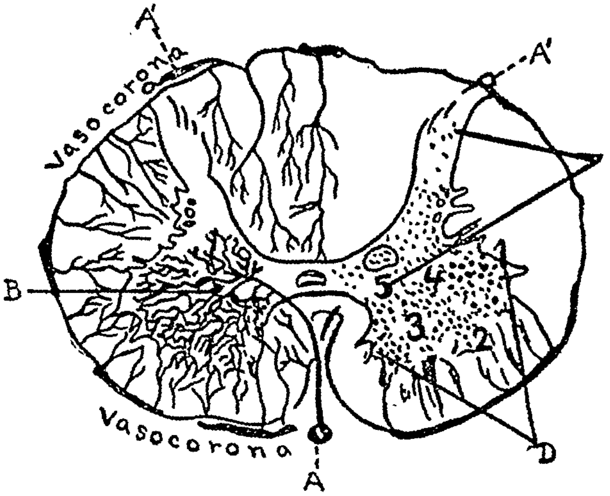

Fig. 2.—Distribution of blood vessels and nerve cells in the transverse section of the cord. *A*, anterior spinal; *A'*, posterior spinal; *B*, area of distribution of sulco-commissural artery; *C*, tract cells; *D*, root cells. 1, postero-lateral; 2, antero-lateral; 3, antero-mesial; 4, central; 5, postero-mesial (Bing).

The investigation of paralyses of the arm showed (1) that the paralysis was most frequent at the shoulder and diminished in frequency from the shoulder to the hand; (2) that the paralysis was severest (that is, that the percentage of total cases was largest) in the shoulder and diminished as one went toward the hand, and (3) that paralysis of the muscles of the left arm was very much more frequent than of the right arm.

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[4] Bing, Robert: Compendium of Regional Diagnosis in Affections of the Brain and Spinal Cord, New York, Rebman Company, 1909.

These three factors will be considered and tabulated, and then the leg will be considered in the same respects, after which the possible meaning of these phenomena will be discussed.

Other facts about paralysis of arm muscles are as follows: In cases in which the muscles of the upper extremity are involved without paralysis occurring at other parts of the body, it is more severe in this region than when the muscles of the legs are also involved; that is, arm paralysis which is strictly regional is more severe than arm paralysis which exists in combination with more general paralysis. This statement rests on the analysis of fifty-eight cases.

TABLE 2.—FIGURES SHOWING THAT PARALYSIS OF THE ARM MUSCLES IS MOST FREQUENT IN THE SHOULDER AND DIMINISHES TOWARD THE HAND

Muscle	Total Paralysis
Deltoid	57
Trapezius	39
Pectoralis	29
Infraspinatus	17
Shoulder group	142 ÷ 4 = 35.5
Biceps	31
Triceps	27
Upper arm group	58 ÷ 2 = 29.0
Flexor carpi ulnaris	16
Flexor carpi radialis	17
Extensor carpi ulnaris	19
Extensor carpi radialis	18
Forearm group	70 ÷ 4 = 17.5
Opponens pollicis	23
Extensor pollicis	12
Hand group	35 ÷ 2 = 17.5

TABLE 3.—FIGURES SHOWING THAT PARALYSIS OF THE ARM MUSCLES IS SEVEREST AT THE SHOULDER AND DIMINISHES TOWARD THE HAND

Muscle	Total Paralysis
Deltoid	12
Infraspinatus	9
Pectoralis	7
Trapezius	7
Group	35 ÷ 4 = 8.75
Biceps	7
Triceps	6
Group	13 ÷ 2 = 6.50
Flexor carpi ulnaris	4
Flexor carpi radialis	5
Extensor carpi ulnaris	5
Extensor carpi radialis	5
Group	19 ÷ 4 = 4.75
Extensor pollicis	3
Opponens pollicis	9
Group	12 ÷ 2 = 6.00

With regard to paralysis of the muscles of the lower limb, the following facts were observed, which are of importance as contrasted with the similar observations in the arm:

1. The paralysis was on the whole more frequent at the hip, and diminished in frequency toward the foot; that is, the individual muscles in the upper segment were more often affected than in the lower (Table 5).

2. The paralysis was on the whole lightest in the hip, next lightest in the thigh and severest in the lower leg; that is, the proportion of total to partial paralysis increased as one went away from the hip toward the foot (Table 6).

RIGHT AND LEFT LEG

With regard to the relative frequency of paralysis in the right and left leg, the figures show in a total of 954 paralyses of leg muscles that there were 465 muscles paralyzed in left legs and 489 in the right, showing no especial difference in the affection of the two sides. This is a marked contrast to the predominance of left paralyses in the arm.

TABLE 4.—FIGURES SHOWING THAT PARALYSIS OF THE MUSCLES OF THE SHOULDERS, ARM AND FOREARM IS MORE FREQUENT ON THE LEFT SIDE THAN ON THE RIGHT

Muscle	Right		Left
Deltoid	24		33
Trapezius	18		21
Infraspinatus	6		11
Pectoralis	11		18
Biceps	11		20
Triceps	12		15
Flexor carpi ulnaris	7		9
Flexor carpi radialis	7		9
Extensor carpi ulnaris	7		12
Extensor carpi radialis	6		12
Extensor pollicis	5		7
Opponens pollicis	10		13
Total	124		180
Ratio	2	to	3 (very nearly)

TABLE 5.—FIGURES SHOWING GREATER FREQUENCY OF PARALYSIS IN UPPER SEGMENT THAN IN LOWER

Muscles	No.
Quadriceps	152
Gluteals	133
Gastrocnemius	128
Tibialis anticus	119
Outer hamstrings	97
Inner hamstrings	95
Peroneals	96
Flexors of hip	81
Adductors	68

TABLE 6.—PROPORTION OF PARTIAL TO TOTAL PARALYSIS IN THE MUSCLES OF THE LOWER EXTREMITY

Muscles	Partial to Total
Gluteal	4.0: 1
Quadriceps	3.6: 1
Flexors of hip	3.5: 1
Adductors of hip	3.2: 1
Hamstrings	2.7: 1
Gastrocnemius	2.2: 1
Tibialis anticus	0.8: 1
Peroneals	0.7: 1

ANALYSIS OF PREDOMINANCE OF PARALYSIS IN LEFT ARM AND FREQUENCY OF DISTRIBUTION IN ARM AND LEG

Certain interesting problems are opened up by this study of arm and leg affections which demand analysis. The facts of paralysis occurrence are as follows: The muscles of the limbs nearest the trunk are more frequently affected than the distal ones; the left arm muscles are noticeably more frequently affected than the right. The leg muscles in the right and left leg are equally affected.

The facts of use or function are that the right arm is much more actively used than the left, not only more frequently, but also for more varied and complicated and finer movements; the legs are used equally It would therefore seem that muscles used actively, continuously and in a complicated way were more likely to escape than those less used, or used for simpler, less continuous work. One would suppose that the blood supply would be more free around the spinal centers where the motor activity was greatest and most complicated, and perhaps less free where the motions were less frequent and complicated. This would account for the predominance of left arm paralysis and the equal paralysis of both legs.

After these figures were worked out, it seemed that such a relation between right and left should appear more in older than in younger patients, because in the younger ones the differentiation between the right and left arms is of course less marked than in the older, younger children being much more nearly ambidextrous. If such a relation between right and left arms rested on a functional basis, it would be expected that there would be a larger proportion of left arm paralyses in older than in younger patients. In twenty-four patients 5 years old and younger, there were twelve left arms and twelve right paralyzed, a ratio of 1:1. In twenty-seven patients over 5 years of age (from 6 to 38 years) there were twenty cases of left arm paralysis and seven of right, a ratio of 3:1.

I should wish to acknowledge here my great indebtedness to Prof. W. B. Cannon and Assistant Professor Martin of the Physiological Department of Harvard University for much assistance on the physiologic side of the problem.

This also accords with the distribution of the paralysis in both arms and legs, which has been shown to be most frequent near the trunk. The demands on the hip and shoulder muscles are simple and less continuous than on the muscles of the lower leg and forearm or of the hand and foot. The latter are continuously active in small, fine, complicated movements, whereas the larger muscles nearest the trunk deal with the coarser and less frequent movements. The relation between the activity of the proximal and distal parts of a limb are not unlike those of the left and right arm in their relative use. It seems probable from these facts and this grouping that, on the whole, muscle centers given to finer, complicated, more frequent movements have a more active blood supply and are less likely to attack on their nerve centers from the virus of infantile paralysis than the centers of muscles functioning in heavier, less complicated and less frequent movements.

ANALYSIS OF SEVERITY DISTRIBUTION IN ARM AND LEG

In the next place, it has been shown that the muscles of the upper extremity are more severely affected nearest the trunk and less severely lower down, whereas in the leg this relation is reversed, and the largest proportion of severe paralyses is in the lower leg and foot. This is estimated on the proportion of total to partial paralysis in the individual muscles.

This puzzling phenomenon is more nearly correlated to the weight coming on each muscle in the activities of the upright position than to any other factor. The great majority of these patients were walking in some form or other, so that the weight-bearing position may fairly be taken into account.

At the shoulder, the deltoid, triceps and biceps all help to hold the arm up against the shoulder joint, and the weight to be met not only in this suspensory function, but also in attempted movements, is greatest at the shoulder and less as one goes down the arm, because the weight of the whole arm is obviously more than the weight of the lower one or two segments. Upper arm muscles, consequently, have more weight to handle than lower arm and hand muscles.

In the leg, on the other hand, the weight to be met in muscular function increases as we go from the hip to the feet, as of course there is greater superincumbent weight at the lower leg than at the hips, so that the lower leg muscles must raise more weight than hip muscles in walking, for instance. There is, of course, no proof that this variation in severity of paralysis is caused by this greater or less weight to be met in muscular function. The explanation accords with the facts, however, better than any other seems to do. Severity distribution cannot be connected with size of muscles, or function of a peculiar sort. It cannot be explained by local circulatory sluggishness affecting dependent parts. It is not associated with anterior or posterior muscles, nor is it easy to connect it with spinal localization. It seems purely a segmental limb distribution, and whether it is or is not the correct explanation, severity of paralysis is proportionate to the weight to be met by the muscles of the different levels, not because this factor influences in any way the original affection of the cells, but because it may retard the recovery of those muscles working against the greatest weight.

This suggestion has a direct bearing on the matter of treatment, for if it is correct it may be interpreted into showing the ill effects on muscular recovery of overuse, a matter which will be discussed later.

Infantile paralysis has been heretofore regarded as a haphazard affection of muscles, most frequent in the leg, and in the cord lesion it appears to have a purely accidental distribution most marked in the lumbar enlargement. It is possible, however, that there are other factors than the cord lesion which determine the ultimate condition of affected muscles. The analysis just made as to frequency and severity of paralysis shows that in cases some months after the attack there are apparently existing conditions not easily to be explained by the cord lesion alone, but suggesting that function, and especially the function of maintaining the upright position, may have something to do with determining the ultimate distribution.

ASSOCIATED PARALYSES IN THE LEG

Further pursuit of the inquiry suggested by the analyses just given takes up the question of muscular grouping in the leg. If the paralysis were a purely segmental affair wholly determined by the cord lesions, there would be in the limbs a roughly segmental distribution, muscles at the front and back of the thigh and front and back of the leg being more often paralyzed in this combination than in any combination suggesting associated function. In other words, opponents would be more often paralyzed in combination than would synergistic or functionally associated muscles at different levels.

The leg rather than the arm was selected for this analysis because of the greater simplicity of function in the former. In the arm, rotation movements complicate the more purely forward and backward movements of the lower extremity.

The inquiry then resolved itself into the investigation of whether associated or antagonistic muscles were most often paralyzed in combination in the legs.

The muscles in the leg most closely associated functionally are the gluteals, the quadriceps and the gastrocnemius, for they are the muscles which maintain the upright position. The gastrocnemius holds the tibia upright on the foot, the quadriceps holds the knee straight, and the gluteals hold the trunk erect on the legs. The associations were as follows: If the quadriceps is paralyzed, either the gluteals or the gastrocnemius or both are almost always associated with it. In 109 cases there were only two exceptions. In three cases the quadriceps had no association in the leg. In the 109 cases of quadriceps paralysis, to contrast with the 106 associations of gluteals or gastrocnemius, there were only fifty-eight associations of paralysis of one or both hamstrings. The quadriceps, therefore, is affected nearly twice as often with its associated muscles as with its antagonists.

When the gastrocnemius is involved, the quadriceps or gluteals were involved in 108 out of 109 cases; but the antagonists of the gastrocnemius, the extensor longus digitorum and the tibialis anticus, either one or both, were paralyzed in combination with it in only sixty-six cases.

EXPLANATIONS OF PREDOMINANCE OF ASSOCIATION PARALYSIS

This predominance of association paralysis is susceptible of several possible explanations, of which the following may be mentioned:

1. The muscles which maintain the erect position are all very large, and must have large centers composed of many motor cells. On account of their very extent, therefore, they are more likely to be affected than smaller muscles by a generally distributed destructive process in the cord. That this is not altogether acceptable is shown by reference to Table 1, in which it will be seen that the tibialis anticus and peroneals, which are small, are of high incidence, and the pectoralis major, a large muscle, is of low incidence.

2. The second explanation is that associated muscles may be so intimately grouped in the arrangement of their motor centers in the cord that they are more likely to be involved in the same lesion than opposed muscles would be. If, however, one may trust to the present data on the segmental innervation of these muscles, this view is not borne out.

3. The third explanation for the predominance of residual paralysis in associated rather than antagonistic groups may be in the functional relation of the muscles themselves. Three muscles, the gluteal, the quadriceps and the gastrocnemius, work together to maintain the upright position, and if a whole leg is lightly affected, it may be that the association of these muscles in function may retard their recovery by their intimate and necessary functional dependence on each other; especially if one were seriously affected, it might retard the recovery of the muscles associated with it by throwing more work on them than they were able to perform in their affected condition, which condition would not obtain with regard to antagonists.

At this stage of the inquiry, it is not possible fairly to choose either one of these three explanations as the one to be accepted to the exclusion of the others.

CLINICAL APPLICATION

Such are the facts elicited in this preliminary analysis.

I regard one point as fairly well established by these figures, namely that there is another factor beside the plain anatomic distribution of the lesion in the cord which determines something of the extent and severity of the residual paralysis.

The therapeutic measures at our disposal in fairly early cases are massage, electricity and muscle training.

Massage may be expected to improve the local and general circulation, to facilitate the flow of lymph, and to retard muscular deterioration. It cannot, however, be expected to facilitate the transmission of a motor impulse from the brain to the muscle.

Electricity is less highly regarded in the treatment than was formerly the case. The unintelligent use of electricity month after month to the exclusion of other measures has been one of the handicaps which has stood in the way of the best progress in many cases. It is quite possible that it may improve the muscular condition. Statements of its value rest as a rule on bare personal assertion or on the unusually rapid improvement of individual cases; but cases vary greatly in their rate of improvement, and the only way to judge of the value of electricity is to use it on one side of the body in bilateral cases and use the other side as a control. In the winter of 1913-1914, some cases in private practice were given daily treatments of galvanic electricity on one side and none on the other, while daily muscle training was being given by my assistant, who was not told which side was receiving the electrical treatment. At the end of some months she was asked if either side had shown more rapid improvement than the other, and no difference had been noted. This simply confirmed my general experience of many years of less careful observation.

Muscle training, on the other hand, rests on a sound physiologic basis, works out empirically better than any other of the measures, and the large proportion of partial paralysis in the cases observed shows its reasonableness.

OVERFATIGUE AND OVERUSE

We come now to the final, and what I believe to be the most important part of the paper, namely, the possible effect of overfatigue and the overuse of massage on returning muscular function, a phase of the treatment question almost wholly neglected.

If we take the case of a partly paralyzed muscle with some remaining power, we are anxious to bring about in that muscle the greatest possible return of functional power; that is plainly our object of treatment. Now the rational exercise of a normal muscle results in increase of size and power of that muscle, and presumably the result would be the same in a muscle weakened by infantile paralysis which was rationally and physiologically exercised or massaged. We are, however, dealing with muscles in many instances very weak and incapable of doing much work, and it must be an easy thing to overexercise them.

As to the question of this overuse, the following facts are suggestive: The majority of the early cases seen in Vermont showed partial rather than total paralysis; the gastrocnemius muscle in cases of early paralysis was quite different from the stretched, lengthened and powerless gastrocnemius muscle of late cases. Muscles partly paralyzed in which power is returning may be rendered functionless by slight grades of overuse. These considerations all have a bearing, and in connection with observations to be mentioned, indicate the possibility that in many cases of infantile paralysis we are encouraging in partly paralyzed muscles a function wholly beyond their ability, and are thus delaying their return of power and possibly converting partial into total paralysis. The observations follow:

It has been repeatedly observed in my private practice that power might begin to return in a very faint degree to a muscle while under muscle training, and that with care this power would steadily increase, but if that muscle were exercised even very gently every day, that power would diminish or disappear, so that we exercise such muscles only once in three days at the outset, increasing the work most carefully.

A young man under my care, severely paralyzed in both legs, six months after the attack showed some return of power in the peroneals. This developed and was exercised in the usual way, but he was so delighted with the new function that one year after the attack he tried it at intervals all of one day on the principle that if a little exercise were good a large amount would be better, and the power promptly disappeared, never to return in full amount after some five months.

A young man with a paralysis of the left arm acquired in Vermont in September, 1914, was brought from New York to see me in December, 1914. He was having massage and exercises daily from an apparently competent masseur, and was urged to use his arm as much as he could to stimulate returning function; but for a month he had not improved, and the parents therefore decided to send him to me for treatment. He could not, however, come to Boston for a month, and asked what treatment he should pursue in the meantime. A sling supporting the shoulder was put on, he was forbidden to use the arm except at meals, and massage was stopped. After a month of this routine he showed at least 25 per cent. of increase of power.

I saw with Dr. F. B. Percy of Brookline, Oct. 19, 1914, a child of 10 with a total paralysis of the anterior tibial muscle and partial paralysis of the gastrocnemius. Ten days after the attack, sensitiveness had gone, but the child could only walk badly and unsteadily. She was kept quiet for a month more, when she was allowed to walk a few steps daily. She made a remarkable gain, and massage and muscle training were begun, Jan. 6, 1915, although the amount of walking was not increased to any extent, the child walking only a very little. In four months the gastrocnemius and tibialis anticus had apparently nearly normal power when their resistance was tested by the hand, but the child still limped a little. Feb. 24, 1915, four months after the attack, the mother was asked to keep this child practically off of her feet for two weeks while the other conditions of treatment were the same. At the end of this time the limp had disappeared.

Oct. 5, 1914, I saw a child of 5 with nearly complete paralysis of one leg below the knee from an attack three months previous. The child walked badly, but was much helped by a brace to hold the foot at right angles to the leg. Muscle training was started, and the child improved satisfactorily, evidences of returning muscle power becoming plain. March 6, 1915, the mother made a statement that attracted my attention, namely, that the child walked better in the morning than at night. She was asked to keep the child off of his feet as much as possible for a month, restricting walking to the greatest possible degree. April 6, 1915, examination showed during the month a very striking increase in power in the muscles controlling the foot, and it was evident that the progress in the last month had been far greater than in any previous month, and the child walked as well at night as in the morning.

These illustrative cases seem to me to show that much smaller degrees of overuse may be deleterious than is generally supposed. Probably any of us would agree that gross and persistent overuse of partly paralyzed muscles would be undesirable; but it seems to me reasonable that in the early stage of returning power, we should be exceedingly careful in the use of muscles in walking and in the use of heavy and prolonged massage, much more careful than we are at present, if I may judge the practice of others by my own previous methods.

I hesitate to reason from an unproved conclusion in this connection; but may I once more call attention to the fact that the proportion of total to partial paralysis is greatest in the muscles which have the greatest weight to oppose in the standing and walking position and least in those which have the least weight, in a series of cases observed some months after the acute attack. If overuse is the harmful factor that I believe it to be in retarding recovery, its effect would be noted in just those muscles which show the highest proportion of total paralysis.

234 Marlborough Street.

EXPERIMENTAL STUDIES OF VARIOUS ANTISEPTIC SUBSTANCES FOR USE IN TREATMENT OF WOUNDS

BASED ON THE WORK OF SIR W. WATSON CHEYNE *

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The purpose of this paper is the experimental study of the antiseptic power and diffusibility of various substances commonly used to check bacterial growth. The study is based on and largely follows the report of Sir W. Watson Cheyne.[1]

The study by Cheyne grew out of a desire to prevent sepsis in the wounds of soldiers received while on duty in the trenches and at the battle front during the present war. As a result of these wounds, an enormous number of serious infections have occurred, followed by a high mortality. This is due in part to a delay in reaching the base hospital and in part to the large number of wounded needing treatment at one time. It was Cheyne's idea that each man should carry a convenient package of some antiseptic diffused in a proper vehicle which could be introduced into wounds immediately after their occurrence, thus preventing or retarding bacterial growth locally, until a thorough disinfection could be carried out at a more convenient time and place.

In a later communication as a result of this work, the British government is now forwarding two packages to each man in the navy, one a paste made up of 20 per cent. phenol (carbolic acid) in a lanolin base and the other a powder of equal parts of boric and salicylic acids. A paste was chosen as a vehicle because of its ease in handling, because of the danger of liquids being lost and because of the fact that the recesses of lacerated tissues are more easily reached. Cheyne advised a paste composed of lanolin, 6 parts, and white wax, 1 part. This proved best from every point of view according to his experience. In our own work we have used this, and find one made up of castor oil, 70 parts, white wax, 20 parts, and spermaceti, 10 parts, to be equally advantageous, to diffuse a little more readily and to be considerably cheaper.

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* From McManes Laboratory of Pathology, University of Pennsylvania.

* Read before the Pathological Society of Philadelphia, May 13, 1915.

[1] Cheyne, W. W.: Lancet, London, Feb. 27, 1915.

The relative inhibitory, germicidal power and diffusibility of various antiseptics used and the most effective strength was determined by incorporating them into the base and growing bacteria on a slab of agar-agar over the paste. It was found that blood clot and agar worked equally well, and our work has been confined to agar.

The general scheme is to place the paste on the bottom of a Petri dish underneath the slab of nutrient agar, and to inoculate the upper surface of the agar with a bouillon suspension of bacteria. The activity of the antiseptic can be easily judged by observing the presence or absence and extent of growth on the surface of the medium.

TECHNIC

In order to obtain comparative results, conditions must be exactly the same for each substance tested. Hence 0.5 gm. of the antiseptic substance is used in each instance. This is spread on a coverslip three-quarters inch in diameter. Where drugs are to be tested in liquid form, two thicknesses of filter paper three-quarters inch in diameter are saturated with the substance, and the experiment carried on as with the paste. The agar slab must be the same thickness in every case. For this Edmund's chamber is used (Fig. 1). This consists of two glass plates, a brass ring one-quarter inch in thickness, a small portion of which has been removed, and three heavy paper clips. One plate is sterilized by passing through a flame and laid on a support, and the brass ring is flamed and laid on the plate, the open portion of the ring at one margin. The second plate is sterilized and placed over the ring. These are bound together with the paper clips. This forms a chamber open at one point into which melted agar is poured and allowed to solidify. When solid, the paper clips are removed, and the upper plate and brass ring lifted. This leaves the agar slab on the lower plate. The coverslip with the paste is placed on the center of the exposed agar, care being taken to have the paste next to the agar. The lower part of a Petri dish is inverted over the agar, and the Petri dish, agar and glass plate turned upside down. With a platinum rod the agar is easily transferred to the Petri dish. A tube of melted agar is poured around the slab to hold it in place. Finally the upper surface of the slab is inoculated by gently stroking with two loopfuls of a bouillon suspension of bacteria. The suspension is made by transfering two loopfuls of a twenty-four to forty-eight hour bouillon culture to a tube of sterile bouillon. This technic is that used by Cheyne with but slight modification for convenience. The plates are incubated for twenty-four hours at 37 C. (98.6 F), and the results recorded. The results remain remarkably fixed after the initial growth, even for days and weeks.

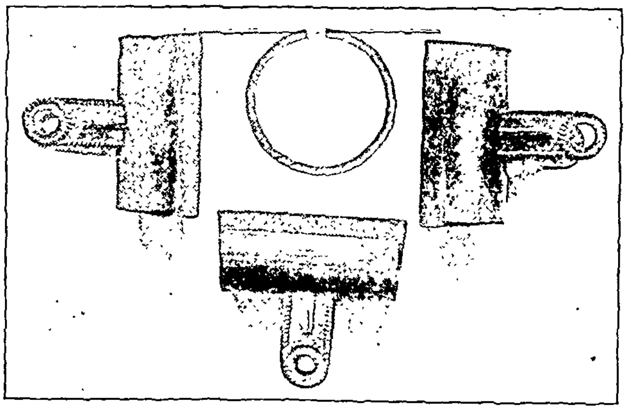

Fig. 1.—Edmund's chamber: a brass ring, two slides and three paper clips.

The organisms used in our work were the *Staphylococcus aureus, Streptococcus pyogenes* and *Bacillus coli.* It was found that substances inhibiting *B. coli* acted on the streptococcus to the same degree and on the staphylococcus to a greater degree, so that in most of this work *B. coli* has been used.

In comparative results the points observed include: 1. Is growth present and to what extent? 2. Is the growth directly over the paste? 3. How close to the margin of the paste does the growth extend? 4. What are the size and number of the colonies in relation to their distance from the paste?

From this comparison a convenient classification of the results may be given under three groups. 1. Those drugs which are markedly active. 2. Those drugs which are slightly active. 3. Those drugs which are inactive.

In order for a drug to fall under the first group, it must have not only antiseptic powers but also a wide range of diffusibility. The phenol group stands out preeminently, so much so that it is almost alone. Thus, too, the activity of the drug should be within a nontoxic dose as compared to common usage in an ointment, or as to its known absorbability in internal administration. Under the second heading drugs may be quite antiseptic locally, and yet according to this method show little or no diffusibility, except immediately over the paste, which means in distance a diffusing power of one-quarter inch through agar. Substances, for example, the dyes, may be quite diffusible and yet have little antiseptic power. If this range of diffusibility applies in vivo and the percentage of the drug used is carefully worked out, I see no reason why there is not offered a wide variety to be applied in the rational treatment of wounds not only in war but in civil life.

A summary of the substances tested follows:

1. Those drugs which are *markedly active;* under this we may include the following: tricresol, 10 to 20 per cent.; phenol, 10 to 20 per cent.; thymol, 10 to 20 per cent.; creosote, 25 per cent.; mercuric iodid, 10 to 30 per cent.; tincture of iodin, 5 to 10 per cent.

2. Those drugs which are *slightly active:* salicylic acid, 20 to 30 per cent.; Japanese powder, salicylic and boric acids, 20 to 30 per cent.; zinc chlorid, 20 per cent.; mercuric chlorid, 0.2 to 0.4 per cent. (in solution, 1:750, and 1:625); guaiacol ointment, 10 per cent.; mercuric ointment, 33 per cent.; creosote, 10 per cent.; carbolfuchsin (contains 5 per cent. phenol).

3. Those drugs which are inactive: iodin, 2 to 6 per cent. (crude drug); menthol and camphor, of each, 20 per cent.; boric acid, 30 per cent.; iodoform, 90 per cent.; zinc sulphate, 1 to 5 per cent.; alcohol absolute, alcohol methyl, alcohol, 95 per cent.; calcium chlorid, 20 per cent.; liquor formaldehydi, 0.1 and 0.5 per cent. (in solution 1:1,000, 1:500); lead nitrate, 5 to 10 per cent.; silver nitrate, 5 per cent. (in solution, 20 grains to 1 ounce); turpentine, 1 per cent.; ether, chloroform, Delafield's hematoxylin, sudan III, Loeffler's methylene blue, eosin watery solution; iodin green, glycerin, bismuth betanaphthol, 20 per cent.; salol, 20 per cent.; hexamethylenamin, 20 per cent.; zinc oxid, 25 per cent. scarlet red (2 per cent. scharlach R); bismuth subnitrate, 50 per cent; balsam Peru, ointment, 25 per cent.; scharlach R saturated solution.

It might be well here to include a little detail concerning some of the more important drugs. Of all the substances used, thymol and tricresol stood out prominently. This was noticed in two ways. They had a wide range of diffusibility, at the same time inhibiting the active growth of those few colonies which formed. Alone they were both active, while in combination this activity seemed somewhat increased. Tricresol was used in percentages of 5, 10, 15, 20 and 25. It was noticed that with *B. coli,* for instance, in a 5 per cent. paste, a diffuse growth took place over the entire surface but much thinner over the paste; in 10 per cent., no growth over and one-quarter inch beyond the paste; in 15 per cent., very few and small colonies on the outer one-quarter inch of the agar; in 20 per cent., no growth. Thymol had about the same action, and possibly from all standpoints showed a little more activity.

Many combinations were tried, including phenol, creosote, thymol, salicylic acid, mercuric iodid and tricresol in varying percentages. Out of this group tricresol and thymol were selected as the best. Tincture of iodin (Fig. 2) gave the following: in 0.5 and 1 per cent., growth over the entire slab; in 2 and 4 per cent., up to the filter paper; in 5 per cent., one-quarter inch beyond the paper, and in 10 per cent., no growth. Crude iodin in 6 per cent. in paste failed to inhibit the growth over the entire surface,[2] but this solution contains only a small amount of iodin: about 0.35 per cent. Salicylic and boric acids, in equal parts as a dusting powder known as Japanese powder, because of its use in the Russo-Japanese War, in a 30 per cent. paste seemed to be quite efficient.

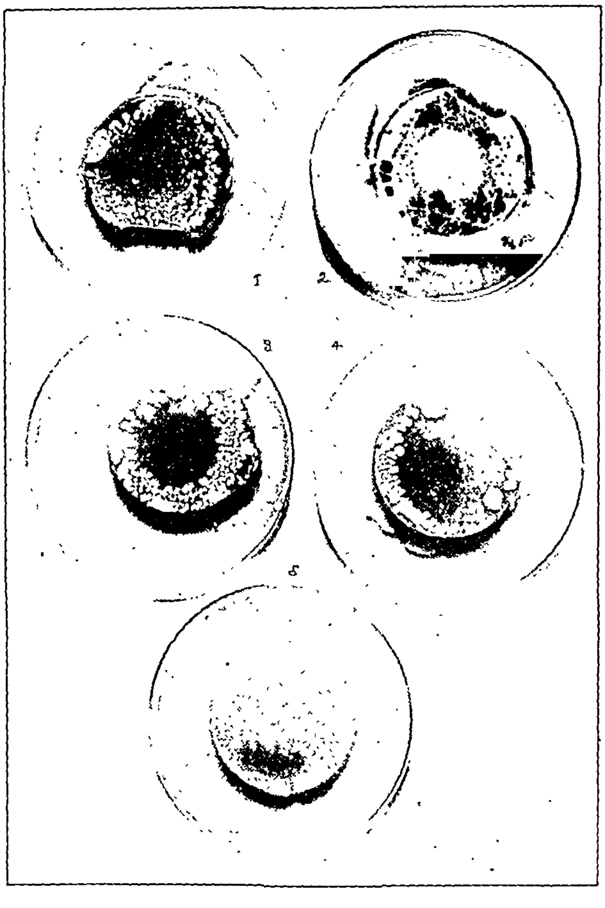

Fig. 2.—Tincture of iodin series: *1,* 1 per cent.; *2,* 2 per cent.; *3,* 4 per cent.; *4,* 5 per cent.; *5,* 10 per cent.

Those substances listed under the inactive heading in the percentages given all show diffuse growths over the agar slab. Silver nitrate, while it showed colonies over the entire surface, reduced the size of those colonies quite appreciably. Scarlet R (scharlach R 2 per cent.), a much used antiseptic, showed large colonies. Scharlach R in saturated alcoholic solution showed large colonies. Sudan III, an allied substance, showed quite an extensive growth.

From our experience, the following paste or ointment is recommended. Thymol and tricresol, of each, 10 per cent. in a base composed of castor oil, 70 parts, white wax, 20 parts and spermaceti 10 parts. Thymol and tricresol are more efficient in 15 and 20 per cent. pastes. They are recommended for use in 10 per cent. when infection has not taken place, or is superficial and not virulent, and in the higher percentages when the infection already exists or is severe. In the use of this paste, 1 dram of a 10 per cent. ointment represents 0.3 gm. or about 5 grains each of the antiseptic. Thymol internally in twenty-four hours has been recommended in dosage of 7 gm. in three hours (Wood). It is true that this is removed afterward by purgation. Pure cresol may be given internally in 2 to 3 minim doses (Wood). Cresol has the advantages of phenol with greater power, less irritation and lower toxicity. This statement may be open to criticism. However, we feel safe in recommending this ointment in dram doses of 10 or even 20 per cent. In the higher percentages, caution should be taken especially as to frequency of application. Since its object is a germicidal one, in these percentages one application should be sufficient with future asepsis maintained by less toxic substances. One of us has applied 1 dram of the 10 per cent. ointment, rubbing it well into the unbroken skin surface. There have certainly been no general effects and only the mildest local tingling. Examination of the urine before and two hours after the application showed no appreciable change in the sulphates.

CONCLUSIONS

1. The method as outlined by Cheyne offers an excellent means for the study, experimentally, of the diffusibility and antiseptic power of drugs.
2. The results obtained are confirmatory in some cases and startling in others as to the value of well-known remedies.
3. The phenol group and thymol give the best results as far as our work goes.
4. We are able to recommend an ointment composed of a base, castor oil, 70 parts, white wax, 20 parts, spermaceti, 10 parts, with tricresol and thymol, 10 per cent. each. Lanolin and wax may be used, but the vegetable base has some advantages.
5. These results are experimental, and must be borne out by clinical application. This we hope to do and report on in the near future.
6. The only drawback is the possibility of toxic effects, and this may be overcome by cautious usage in the amount applied and the interval between dressings.
7. This paste has a wide range in civil life as well as in war, and should prove more effective than those of common usage because of the increased percentages of the drug.
8. At the same time, the principle of the large dose is to establish at once or to maintain an asepsis in a wound, until ideal conditions for surgical treatment are available.

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[2] In 10 per cent., mercuric iodid had a fair degree of diffusibility. Lugol's solution showed a growth over the entire surface.

THORIUM—A NEW AGENT FOR PYELOGRAPHY

PRELIMINARY REPORT

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In order that a solution may be ideally suited for use in pyelography, it must fulfil the following conditions: It should be nontoxic, nonirritating, and quite fluid, so as immediately to escape from ureters and bladder, and present the greatest possible degree of opacity to the Roentgen ray, casting not only a good shadow but also one of clear delineation.

Various colloidal solutions of salts of the heavy metals such as iron, silver, bismuth, copper and lead, and suspensions of the salts of bismuth, calcium and magnesium have been tried. All of these solutions sediment on standing, and while being, for the most part, quite opaque to the Roentgen ray, are viscous, and some are quite toxic and irritating.

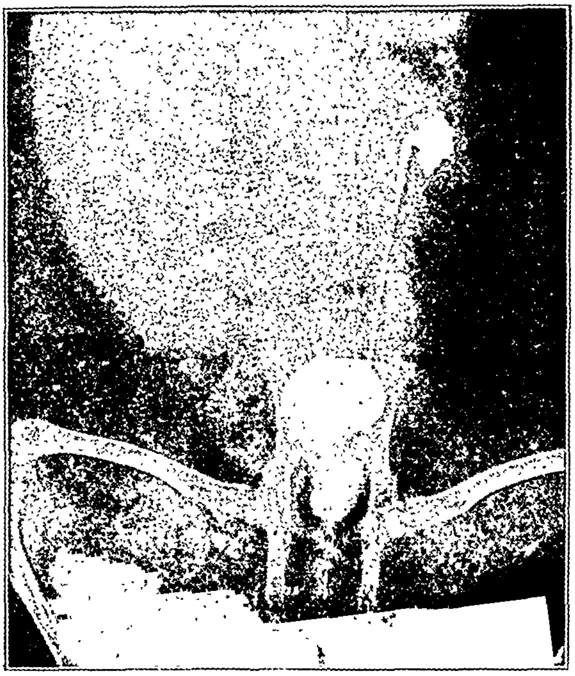

Fig. 1.—Rabbit's ureter and pelvis of kidney injected with 50 per cent. solution of thorium nitrate in distilled water.

Thorium nitrate dissolves readily in water, giving a clear, markedly acid solution, which, while being opaque to the Roentgen ray, is unsuitable for use because of its being an irritant, possessing a marked degree of astringency, and precipitating insoluble salts in the urine. This solution cannot be injected intravenously into animals because it causes intravascular clotting.

The neutral solution of thorium nitrate and sodium citrate, however, about to be considered, possesses, as far as observations made at the present show, all of the previously mentioned salient characteristics for use in pyelography. In this solution there seems to be a complex ion formation which changes both the chemical and pharmacologic action without causing any decrease of the opacity of the solution to the Roentgen ray. This solution also inhibits, but does not prevent the growth of ordinary bacteria. It flows readily, owing to its lack of viscosity, and escapes immediately from a ureteral catheter when injected into the pelvis of the kidney, or can be voided immediately if used in the bladder. It is perfectly clear to transmitted light, possessing a faint, yellowish tinge in large volume. It is perfectly clean and does not stain the clothing. From an economical standpoint, it

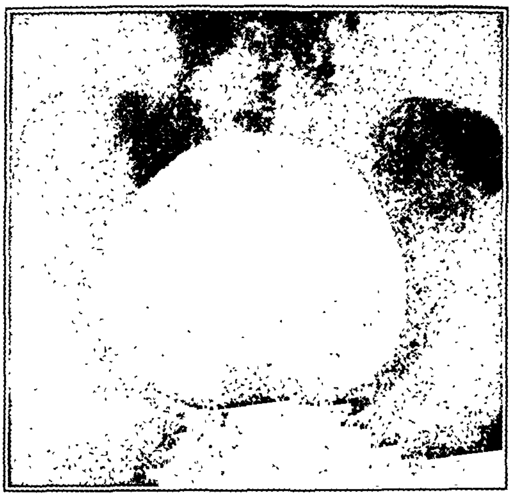

Fig. 2.—Normal bladder shadow. The bladder of this patient was injected with 350 c.c. of a 10 per cent. neutral solution of thorium nitrate and sodium citrate. Cystoscopic examination seventy-two hours after injection showed the bladder picture to be the same as before injection The patient experienced no discomfort after the injection, nor where there any signs of irritation.

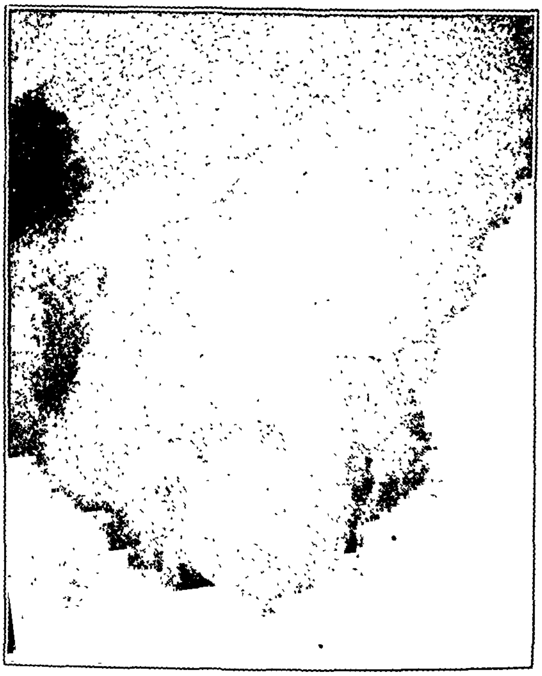

Fig. 3.—Trabeculated bladder with dilated internal sphincter, bilateral hydro-ureters and hydronephrosis due to congenital obstruction in the posterior urethra in a boy, aged 12 years. In this case, 600 c.c. of a 10 per cent. neutral solution of thorium nitrate and sodium citrate were allowed to flow in by gravity through a urethral catheter, the patient being in the Trendelenburg position while the picture was being taken. Cystoscopic examination, five days after the injection, showed the bladder picture to be the same as before injection. Phenolsulphonephthalein output and blood urea estimation were the same as before the injection. There were no signs of any irritative action.

has a decided advantage, being much cheaper than any of the silver preparations used at present, which are very expensive, particularly if used in quantities sufficient for bladder pictures and large hydronephroses. These preparations are also objectionable because they stain the clothing have such viscosity as to make injections through a small catheter difficult, are very irritating when they escape into the tissues, and have, as a matter of fact, been followed by death in several instances.

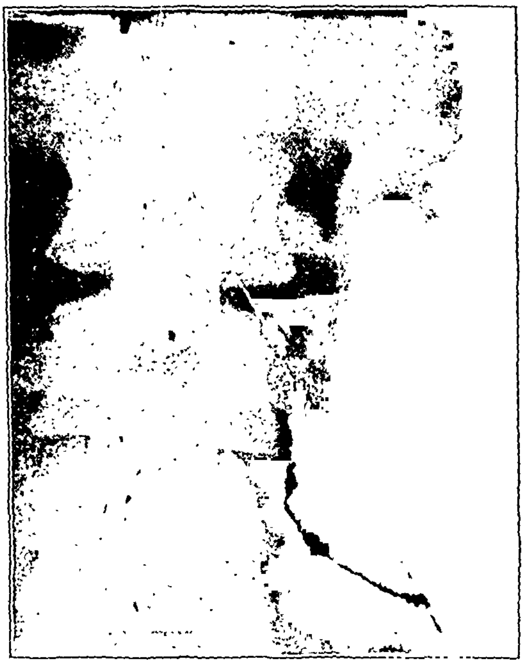

Fig. 4.—Renal pelvis and ureter. Seven and five-tenths c.c. of a 15 per cent. neutral solution of thorium nitrate and sodium citrate were allowed to flow into the pelvis of the kidney by gravity through a ureteral catheter. The phenolsulphonephthalein output was unaffected by injection; the solution caused no signs of any irritative action.

The solutions used contain 10 per cent. and 15 per cent. thorium nitrate and are made in the following way:

> To make 100 c.c. of a 10 per cent. solution, 10 gm. of thorium nitrate are dissolved in as little distilled water as possible; to this solution, kept hot on a water or steam bath, are added 30 c.c. of a 50 per cent. solution of sodium citrate, the additions being made in small quantities and care being taken to shake the solution thoroughly after each addition. At first after the addition of the citrate solution, a white gummy precipitate is formed which later becomes granular, and finally dissolves on the addition of all the citrate solution. This solution is then made neutral to litmus by the careful addition of a normal solution of sodium hydroxid, and made up to the required volume of 100 c.c. with distilled water. On filtration, a clear, limpid solution is obtained, which, when sterilized, either by boiling or steam under pressure, is ready for use. The stability of the solution is not affected in the least by sterilization.

The neutral solution of thorium nitrate and sodium citrate, prepared as directed above, is not irritating to the mucous membranes or peritoneal surfaces, does not precipitate salts in the urine, and can be injected intravenously up to 1.5 c.c. per kilogram of body weight and given by stomach up to 4 c.c. per kilogram of body weight in dogs without causing any change in the phenolsulphonephthalein output, blood urea content, hemoglobin content or cellular elements of the blood. No gastro-intestinal symptoms have been observed in any of these animals up to the present time. Complete protocols of these animals and further studies in regard to its pharmacologic action will be published in a subsequent paper. This solution may also be used in the roentgenographic study of the gastro-intestinal tract and other viscera.

The illustrations show not only the density of the shadow but also its clear delineation, when this solution is injected either into the bladder, ureter or pelvis of the kidney.

Further clinical studies are being pursued, and a report of their results will be published later; but the advantages of this neutral solution of thorium nitrate and sodium citrate for pyelography and other skiagraphic studies are so great that this preliminary report is now given. It is being used regularly in all our suitable urologic cases, and apparently is perfectly innocuous. If further experience confirms our present studies, it seems probable that we have in it a method of great value to urologists and roentgenologists.

SHORT CIRCUIT OF THE VAS DEFERENS

CHARLES MORGAN McKENNA, M.D.
Surgeon to St. Joseph's Hospital; Instructor in Genito-Surgery, College of Medicine, University of Illinois; Genito-Surgeon to People's and St. Bernard's Hospitals
CHICAGO

By short circuit of the vas I mean joining together the patent lumen of the vas with a section of the epididymis or testicle. Just a word regarding the anatomy of these parts in order to make the following clear.

The testis is composed of an enormous number of much convoluted seminiferous tubules, which fill up the intervals between the septums. These tubules form larger tubules, and finally make up the vasa efferentia, and on reaching the head of the epididymis form a larger tube which is called the canal of the epididymis. After a tortuous course, this ends at the globus minor and opens into the vas deferens. This is at the extreme lower pole of the testicle. The vas deferens begins at the tail of the epididymis and ends in the common ejaculatory duct, where it enters the prostatic or first part of the urethra.

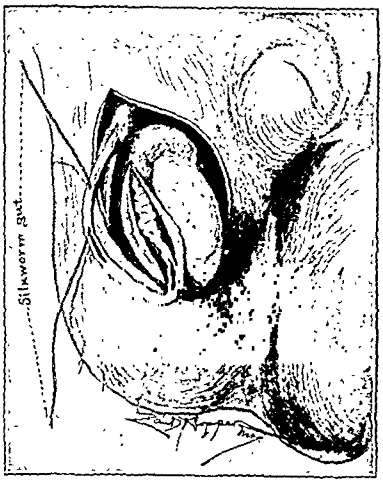

Fig. 1.—Exposure of vas deferens; silkworm gut in lumen of cord.

The operation under discussion is usually done to repair an old gonorrheal epididymis in which there is an obstruction of the vas between the tail of the epididymis and the external inguinal ring. It is of the greatest importance, therefore, to know whether that part of the vas is patent between the external inguinal ring and the opening of the ejaculatory duct into the prostatic urethra. This may be investigated at the time of the operation, but better should be done two or three days before the operation by drawing the vas through a small skin opening and injecting it with a solution of argyrol or collargol. By injecting the vas with either one of these solutions, the urine will become discolored a dark brown on first urination, hence, showing the vas between the incision and the prostatic urethra to be patent. If it should be found that the vas was not patent, it would be of no avail to do a short circuit operation, but Lespinasse's operation of the distal end of the vas becomes the one of choice.

Granting that the lumen is patent, the next point to be considered is the condition of the channel as to infection. It would be quite an error to go on with the operation if the seminal vesicle or ejaculatory duct contained any pathogenic organisms. I therefore wish to emphasize that it is quite important that the operator be absolutely sure that these parts are perfectly clean and will perform their duty if called on, provided one succeeds in opening the passage for the spermatozoa. If there is any doubt as to this condition existing in the seminal vesicle or ducts, these should be treated after Belfield's method.

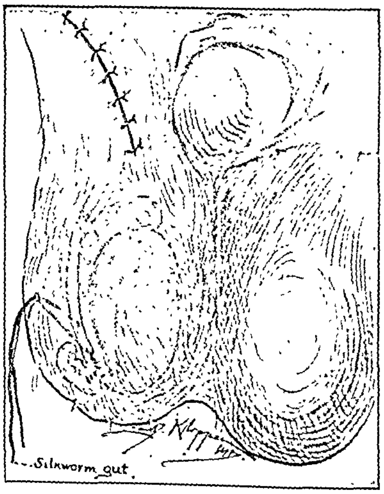

Fig. 2.—Anastomosis of vas with epididymis.

Dr. E. D. Martin of Philadelphia in 1900 tried this operation with success. He used four fine silver wires for the anastomosis and used the head of the epididymis as the base for the implantation. This was done on each side at different sittings, and at the second operation succeeded in getting free spermatozoa in the urethra.

Scatudo in 1901 tried the same operation by doing an implantation of the vas into the rete of the testis. In his case, he did a complete resection of the epididymis, using the argument that if it were tuberculous, he could still get free sperm direct from the testis. One of his dogs escaped without an examination being made, and the others did not show any live sperm.

Boarri in 1908 reported a case in which he succeeded in getting the sperm through direct from the rete in the testis.

My own work has been done mostly on dogs at the St. Joseph's Hospital. This is more or less of a preliminary report on the work thus far carried out. In the first three dogs operated on, the incision was made over the vas in close proximity to the epididymis. The vas was divided at this point and brought in apposition to a section of the epididymis, the incision in the epididymis being made in the head. In the first three cases, ordinary catgut was used to make the anastomosis, and as a result no sperm could be found in the urethra. In the next three cases, two were done the same as the first, and in the third a fine silver wire was used instead of the catgut, which was removed later. In the case in which the wire was used, no trouble was manifested in finding free spermatozoa in the urethra. Before doing the next two, I consulted Dr. Belfield, who explained that, while he had never tried it or seen anything in literature, he thought it would be a good scheme to introduce a silkworm-catgut in the lumen of the vas, and draw it out through the skin. This was done, and I shall show later in the technic of the operation how it materialized. In the last two dogs operated on, a side anastomosis was done instead of the end of the vas being used as at first. The silkworm-catgut introduced in the lumen of the vas was not used as an anastomosing suture, but as a means to leave the lumen patent and remove any blood clot that might tend to obstruct the vas after the operation. This plan worked perfectly in all cases, even in one case in which the vas was crossed over to the opposite epididymis.

The work on man so far consists of six cases, five of which can be reported. Out of these five, two have passed living sperm, three have not passed any, and in the last one, sufficient time has not elapsed between the operation and the time of the writing of this paper. I feel that I am somewhat to blame for the nonappearance of the sperm in these cases. While there had been success with the operations performed on the lower animals, it is quite a different thing to operate on man when pathologic conditions exist. The error was made in doing the anastomosis, the head of the epididymis, instead of the tail, being always used. The selection of the portion of the organ to be used depends altogether with the operator. This may or may not be in the extreme tail of the body.[1]

It is not a good plan to do the anastomosis unless plenty of free motile spermatozoa can be found. Free spermatozoa cannot be mistaken by the naked eye when there are enough present. The appearance of sperm in the vas is that of white milky pus passing through blood. After a few observations there will be no difficulty in locating the best field for the implantation. But considerable time should be spent in locating a suitable section for the implantation, to assure the patient a fair prognosis. Thus far. I have had no difficulty in finding the motile sperm in the tail of the epididymis or one-fourth inch above the tail. In one of the cases in man in which operation was performed, the amount of sperm was so much that I was sure there must have been some pus still remaining in that section of the epididymis. Before the operation was completed, a slide was covered with the fluid and sent to the laboratory for diagnosis. Dr. George Dick made a microscopic report which showed the slide to be completely covered with living sperm. In this case sperm was found afterward in the urethra.

TECHNIC

I base my technic for short circuit or transplantation of the vas deferens on the contention that vas operations should follow out sound surgical principles as used in surgery in other parts of anatomy. Some of the important points are:

1. Clean exposure and fixation of the cord.

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[1] In one of the first cases reported in which the head of the epididymis was used for the implantation, the second and fifth nights after the operation the patient had an emission in which blood and argyrol were found in the discharge. This was certainly a proof that the operation was a success, and if free spermatozoa had been present they would have passed through.

2. The patency of the vas between the incision and the ejaculatory ducts. (This information is obtained by doing an injection of the vas previous to the present operation, Belfield's method.)

This operation is indicated when the occlusion is below the internal inguinal ring. The procedure is as follows:

The patient is cleaned and prepared as for any other surgical interference, except that tincture of iodin is not allowed to touch the scrotum in order to prevent excoriation. The patient is put under general anesthesia and placed in a slight Trendelenburg position. An incision is made in the same location as in operating for inguinal hernia and carried to the pendulous portion of the scrotum. The vas and epididymis are exposed at this point. A tenaculum or volsellum forceps are placed about the cord at its junction with the epididymis. A silkworm-gut is carried underneath the vas about 3 or 4 inches above the forceps. This is done to fix the cord in order that a clean field may be maintained, and makes the entrance to the vas easier for the operator.

The vas deferens is stripped of its covering for 2 or 3 inches above the epididymis by gauze dissection and Kocher director. Great emphasis is laid on this point as it expedites the operation and prevents any error in getting in its longitudinal axis in the lumen of the vas. An incision is made into the vas about one-half inch long. A fine pointed bistoury is the best instrument for this purpose. The incision is made about 2½ inches above the head of the epididymis. A piece of silkworm-gut is introduced into the lumen of the tube by means of a long hypodermic needle. The thread is put into the proximal end of the needle and pushed in just to the distal margin. The needle is now placed in the incision already made in the vas and pushed into the lumen of the cord above to the incision, and the point of the needle is brought out through the wall about 2 inches above the lower opening. The thread is drawn through the needle at this point, and the needle withdrawn through the lumen of the vas, thus leaving the silkworm-gut extending from the incision below and out through the wall 2 inches above, both ends of the thread being free. I wish to mention here that this is Dr. William Belfield's suggestion, and to him I wish to give all credit. Two sutures of chromicized catgut are placed through the incision already made in the vas and brought down into the opening made in the epididymis. The sutures are tied for permanent fixation, thus making the anastomosis of the vas with the epididymis and out through the skin, the sutures being tied loosely on the outside. These stitches are left in for from ten to fourteen days in order that the lumen of the vas may remain open. The tunica is closed in the regular way, as are the rest of the anatomic structures. The wound is healed and the scrotum put in a well-elevated position. The patient remains in bed from seven to ten days, at which time the skin sutures are removed.

The scrotum is carried in a suspensory from four to five weeks after the operation in order that no pressure be brought to bear on the anastomosed vas. Intercourse should not be allowed until six weeks after the operation.

CONCLUSION

I wish to emphasize the following points:

The vas should be free from infection.

The section of the epididymis used should contain plenty of free sperm, and the tail used for implantation.

108 North State Street.

Vital Statistics and Sanitation.—A nation that does not consider it necessary, or that is not able to provide adequate means for registering the births of its own children, or for officially recording the deaths of its citizens, can hardly be supposed to attach sufficient value to human life to enable sanitary measures for its conservation to be adequately carried out.—C. L. Wilbur, quoted by Irving Fisher, Memorial Relating to the Conservation of Human Life.

New Instruments and Suggestions

A PRACTICAL METHOD OF APPLYING THE WAX-TIPPED CATHETER IN THE DIAGNOSIS OF URETERAL STONE IN THE MALE

Frank Hinman, M.D., San Francisco

It is barely three years since the valuable wax-tipped catheter method of diagnosis of stone in the ureter, introduced more than twenty years ago by Howard A. Kelly of Baltimore, for use in the female, was adapted by Burton Harris for use in the male. The adaptation proposed (1912) by Harris has several objections: 1. The difficulty, trauma and pain of passing the cystoscope are increased. In the procedure the wax-tipped bougie is first passed into a full bladder, and the cystoscope, with its catheterizing telescope in place, is then threaded down the urethra over this bougie as over a filiform. Naturally the beak of the instrument must scrape along the catheter, and the window of the instrument, having no obturator, adds to the roughness and difficulty. 2. Security against scratching the waxed tip, whose position in the bladder is unknown on the insertion of the cystoscope, is not absolute. 3. The cystoscope must always be withdrawn from the bladder before the catheter is removed from the ureter.

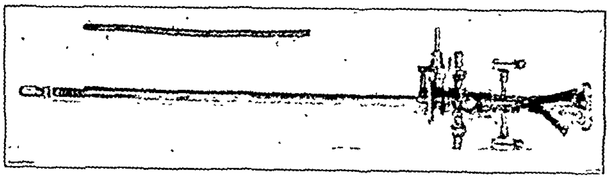


Fig. 1.—Preparation of wax-tipped catheter sheath: A soft rubber urethral catheter which will pass freely through the operating cystoscope (No. 9 or 10 F. for Brown-Buerger instrument) is passed into the cystoscope until the end projects a little beyond the elevator of the instrument. The other end is cut and slit up so that when the two slit portions are turned back over the mouth of the telescope they will hold the catheter in this position.

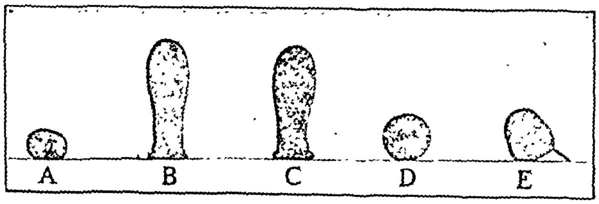


Fig. 2.—Method of making rubber tips for the operating telescope from small pipet bulbs: *A*, large rubber tip with single perforation on the market. This is too small for use with the rubber sheath; *B*, plain rubber pipet bulb, 3 cm. in length; *C*, bulb divided into three equal parts; *D*, first part placed inside of third and fastened with two silk sutures; *E*, single perforation in bulb, made with hot needle.

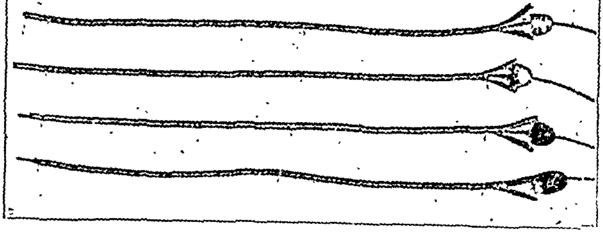


Fig. 3.—Rubber sheaths with wax-tipped catheters: In the upper two the tips are about 1 inch from the end, the position in which they should be, both for insertion of sheath into cystoscope and for withdrawal of sheath and catheter for examination of the waxed end. The rubber tip at the slit end of the sheath serves to mark and hold the catheter in this position. In the lower two the catheters have been pushed through for examination.

A simple procedure, which overcomes these disadvantages, has been used recently in several cases with entire satisfaction. It eliminates completely the added difficulty and pain in passing the cystoscope. It gives perfect security against extraneous scratches, and it permits the removal of the wax-tipped catheter for examination without previously withdrawing the cystoscope. The latter is a great advantage. Several control waxed tips may be passed one after the other, thus confirming the findings or accurately measuring the distance of the stone from the ureteral orifice. At the same time, and through the same cystoscope, an ordinary ureteral catheterization followed by functional study, ureteropyelogram or even both may be made, thus obtaining complete information in the case at the one cystoscopy.

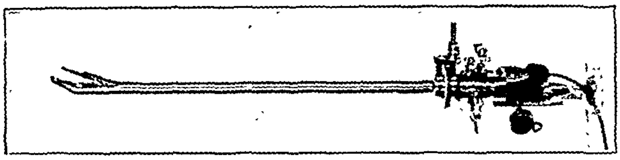


Fig. 4.—Catheter sheath fastened in place by rubber tip. The elevator of the instrument has been raised, showing how the rubber sheath protects the waxed tip.

The operating cystoscope (Brown-Buerger is used, but the method is applicable with any operating instrument) is passed into the bladder as for ordinary cystoscopy, the obturator withdrawn, the bladder washed out (the irrigating fluid should not be too warm, as it may soften or melt the wax), and the operating sheath of the instrument then inserted. The wax-tipped catheter has been provided with a soft rubber sheath, which should easily pass through the operating barrel of the instrument, as shown in Figures 1 and 3. The usual rubber tip (Fig. 2 *A*) for the irrigating instrument is too small to cover the orifice of the telescope when the slit ends of the rubber sheath are turned back. A very satisfactory tip may be quickly made, as indicated in Figure 2 *B*, *C*, *D* and *E*. In fact, this tip will be found to be much more satisfactory for all work with the operating cystoscope than the hard, friable tips on the market. The method of passing the wax-tipped catheter is indicated in Figure 4. The sheath with its catheter inside (to within 1 inch of the end) is threaded into the instrument until the end of the sheath appears in the visual field just beyond the end of the elevator of the instrument. The slit portions of the other end of the sheath are then spread to the opposite sides and covered by the rubber tip, which thus securely holds the sheath in place and insures dryness. The waxed tip is now carefully pushed into the field (Fig. 5), the elevator, which strikes the rubber sheath and not the catheter is raised, and the catheter then pushed on up safely by the beak of the instrument into the ureter (Fig. 4).

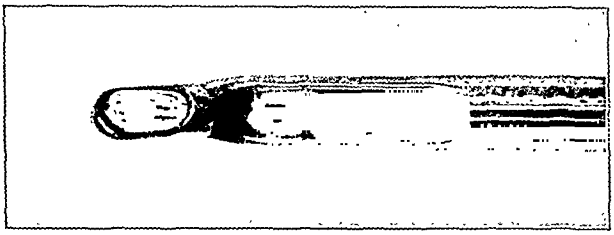


Fig. 5.—Waxed tip and rubber sheath before raising the elevator of the cystoscope.

In removing the wax-tipped catheter, after passing it up the ureter as far as desired, the lever of the instrument should be kept partially elevated; the waxed end can then be withdrawn into its sheath with no danger of striking the beak of the instrument. It is preferable to withdraw the sheath with the catheter in it, rather than to withdraw the catheter through the entire length of the sheath, for examination. In this way the waxed tip will have passed only a very short distance through its sheath, being originally retrograded into it to a distance of about 1 inch, and, before examination and after having passed up the ureter, not being withdrawn into it to a greater distance than this.

Physicians Building.

A NEW LID EVERTER

Sidney Israel, M.D., Houston, Texas

This small lid everter is the outcome of an endeavor to find an instrument that would give a large exposure of the entire upper lid and culdesac. Its most salient features are simplicity of design, ease of manipulation, and freedom from causing pain in introduction. It has been the means of revealing several cases of trachoma that had been overlooked by ordinary methods.

In introducing the instrument, it is grasped at its distal end between the tips of the thumb and index finger. With the patient looking down, the lashes of the upper lid are held in the tips of the thumb and index finger of the left hand. The knobbed ends of the instrument are then placed gently on the upper lid about one-half inch from the ciliary margin with the instrument in the vertical position. With the fingers of the left hand holding the lashes, the lid is retracted over the knobbed ends, and with gentle pressure on the distal end, the entire under surface of the upper lid, including the culdesac, is freely brought into view. In this position the knobbed ends can be slid from the outer to the inner canthus, exposing any part desired. In this position also, with the under surface of the lid exposed, the hold on the eyelashes by the fingers of the left hand can be released, and with the tip of the index finger of the right hand on the distal end still maintaining the position of the instrument in the vertical meridian, the thumb of the right hand can be dropped down to hold the lashes in place to maintain a complete eversion of the lid, while with the left hand free, any foreign body that is present on the under surface of the lid is easily removed.

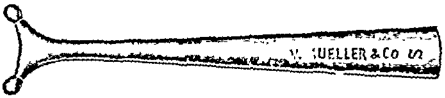


Fig. 1.—New lid everter.

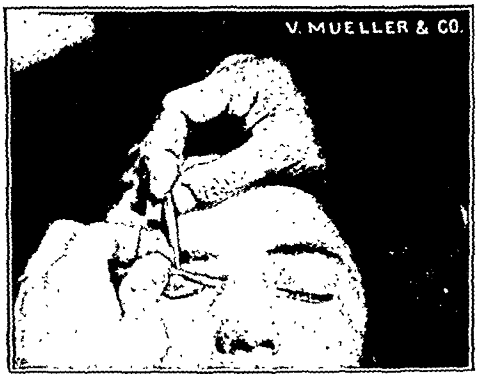

V. MUELLER & CO.

Fig. 2.—Method of using the lid everter.

The instrument can be readily carried in the pocket, and because of facility of introduction, can be used universally by the general practitioner and the ophthalmologist.

IMPROVED FORM OF BRAIN EXPLORER

Harold Gifford, M.D., Omaha

In the *Laryngoscope*, January, 1914, I described a brain explorer consisting essentially of two knife blades held together with a spring, to be used in cases of suspected brain abscess in place of the exploring needle or scalpel. As is well known, each of the latter instruments may pass through the wall of an abscess, and either on account of thickness of the wall or thickness of the pus, may not reveal its presence. The practice of passing in dressing forceps and opening them here and there in the brain can hardly be called either accurate or elegant. With this brain explorer, one passes the instrument into the brain as far as one thinks necessary, and then opens the blades; if no pus escapes, they are closed and passed on, being opened from time to time until they have gone as far as is permissible in any given direction. One can be sure after having done this that no pus in this particular tract will be left undiscovered.

Since my first article was published, I have modified the instrument, because on using it I found there would be a decided advantage in having the spring set off at an angle from the main axis of the blades. This greatly facilitates the introduction of a drainage tube or other drainage apparatus into the cavity of the abscess when the latter has been found. When the abscess has been penetrated and pus found, the instrument is kept in position until the drainage tube or gauze has been introduced into the cavity between the separated blades of the explorer, which have been grooved on the inner side to facilitate the introduction of a glass tube. The opening in the abscess wall can be enlarged to the desired extent by the closed blades of the explorer, or, if preferred, this can be done with a blunt-pointed bistoury introduced between the blades.

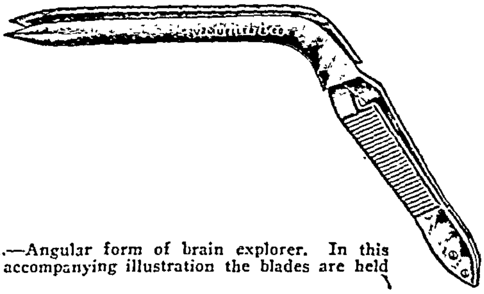


Fig. 1.—Angular form of brain explorer. In this ana the accompanying illustration the blades are held apart.

Since I first described the explorer, I have had occasion to use it in three cases of brain abscess. In two of these it worked most admirably. In one of them, the abscess was deeply situated in the frontal lobe, and it is a very open question whether the ordinary instruments would have opened it successfully. This patient on account of disagreement with the internist in charge, passed out of my hands to that of another surgeon, and what the final outcome will be, remains to be seen. Another patient with a large temporosphenoidal abscess is now, after three months, apparently perfectly well. In the third case, the abscess was a very small one originating apparently from the sphenoid cavity, and was situated so far back, and so close to the median line, that although a careful search was made for it, it was missed, and the patient died.

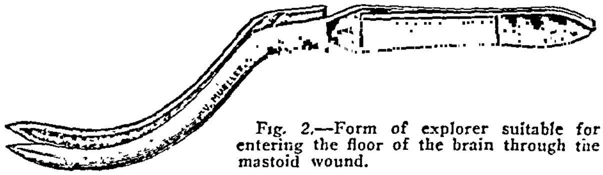


Fig. 2.—Form of explorer suitable for entering the floor of the brain through the mastoid wound.

In speaking of this instrument, which I have had in mind for a number of years, I have always said that the principle of it was so obvious that the idea must certainly have occurred to many operators beside myself, and I have found since my paper was published that West and Scott of London, in their excellent book on aural surgery (Blakiston's Sons & Co., 1909, p. 106), figure an instrument which they call an expanding trocar, which is made to be used in the same way. This, however, has such narrow, short blades that it must be decidedly less effective than the explorer here shown.

Beside the angular form of explorer (Fig. 1), I have had one made with curved blades (Fig. 2) for use on the floor of the brain. This form enables one to enter the temporosphenoidal lobe through the mastoid wound much more readily than could be done with the straight blades.

A COMBINED STAINING METHOD FOR MALARIAL PARASITES AND BLOOD SMEARS

Frederick F. Russell, M.D., Ancon, Canal Zone, Panama
Major, Medical Corps, U. S. Army

In this country the most popular blood stain is Wright's modification of the Romanowski method; in England and the English colonies, Leishman's stain is used almost exclusively, while in Germany, Giemsa's is the favorite. These stains and their many modifications are all excellent for chromatin, but as ordinarily used they fail to bring out the cytoplasm of the malarial parasite with the sharpness and distinctness obtained with Manson's borax methylene blue. The latter, until the Romanowski was simplified by Leishman, Wright and others, was the best we possessed for malarial parasites; in fact, for routine work it is still used by many.

The advantages of Manson's stain may be briefly stated as follows: 1. Cheapness, permanence and simplicity of preparation. It is made by dissolving 5 gm. of borax in 100 c.c. of boiling water and adding 2 gm. of methylene blue, medicinally pure; when cool the volume is made up to 100 c.c. and the stain is ready for use. 2. The clearness and distinctness with which it brings out the cytoplasm of the malarial parasite. 3. The rapidity and simplicity of the staining technic. The smear is fixed for a few moments in equal parts of alcohol and ether, or methyl alcohol, and allowed to dry; it is then immersed in a very dilute solution of Manson's stain for from ten to thirty seconds, washed in water and dried. 4. It also shows well the basophilic degeneration of the erythrocytes.

Its disadvantages are that: 1. It fails completely to show the nuclear chromatin of protozoal parasites. 2. It fails to bring out the granulations in the leukocytes. Because of these two defects, Manson's stain has fallen into disuse in this country in spite of the fact that it stains the cytoplasm of the malarial parasite better than any other.

The disadvantages of the methyl alcohol stains of Leishman, Wright, Hastings and MacNeil are: 1. Their expense; it requires approximately 1.3 c.c. for each slide, and methyl alcohol of proper quality is costly. 2. The rapid evaporation of the stain on the slide, with resulting precipitation; this is especially troublesome during the windy season in the tropics. In Vera Cruz, for example, it was difficult to obtain clear preparations unless the slide was protected during the staining by a bell jar. 3. Great care and watchfulness are necessary to success in staining. 4. With none of these stains is the cytoplasm of the malarial parasite so clear and distinct as with Manson's stain. The stain of Giemsa belongs to this class, although it is used in aqueous solution; it is slow, expensive, practically impossible to obtain except from Gruebler in Leipzig and while it gives excellent chromatin stains, the cytoplasm is not well brought out.

The advantages of the methyl alcohol stains are: 1. The rapid and perfect fixation. 2. The clear and beautiful staining of the chromatin of the nucleus. 3. The production of Schuffner's dots in the erythrocytes in tertian malaria. 4. The beauty and distinctness of the nucleus, cytoplasm and all classes of granules in the leukocytes. 5. The distinct staining of the blood platelets.

It is evident that an ideal picture would result if the best of the methyl alcohol chromatin stains could be combined with Manson's cytoplasmic stain. After several attempts the following method was found to give the best results and it has been used for the routine of the laboratory for thousands of blood preparations:

1. Fix and stain for two minutes in Wright's or similar methyl alcohol stain. It is most convenient and economical to use about 50 c.c. of stain in a Coplin jar; the top should fit well to prevent evaporation and the stain may be used repeatedly.

2. Without washing, transfer the slide to a glass of tap water for from three to five minutes.

3. Without washing, transfer to diluted Manson's stain for from twenty to forty seconds. One-half c.c. (7 drops) of Manson's stain to 50 c.c. of tap water in a Coplin jar gives

about the proper strength. This staining fluid in concentrated form keeps well, but the diluted stain should be freshly prepared each day.

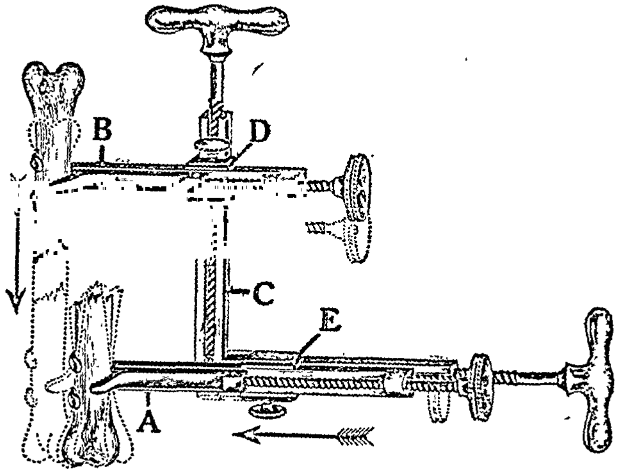
4. Wash quickly in tap water, dry and examine.

With this method, good preparations showing both the nuclear chromatin and the cytoplasm of the malarial parasite are obtained. The method is economical since very little of the methyl alcohol solution is used; and this is important in the tropics and at places far removed from the base of supplies. The slides being always in the vertical position, any precipitate which forms falls immediately to the bottom of the vessel. Soaking the slide in water during Step 2 does not affect the staining of the chromatin in the least, but does dissolve out most of the blue; this is replaced, however, in Step 3 by a better blue than any of the methyl alcohol stains are capable of giving. The whole point of the method, so far as malarial parasites are concerned, is that an intense cytoplasmic stain is added to the excellent chromatin stain obtained with Wright's, Leishman's, MacNeil's and other methyl alcohol stains, making the parasites much more distinct and more easily and quickly recognized in the routine examination of many slides for malaria.

APPARATUS FOR FRACTURED BONES

William E. Schroeder, M.D., Chicago

The instrument consists principally of three parts—an L-shaped arm, *C*, the two branches of which carry two carriages and two bone clamps. The removable carriages, *D* and *E*, are movable in two directions, one laterally and the other away from or toward the operator, as may be required. Mounted on the two carriages are two strong and adjustable bone clamps which are modifications of the well-known Lowman clamp.



Apparatus for holding and bringing into alignment fractured bones of the extremities, for the purpose of applying bone plates, splints of absorbable material or human bone grafts.

The illustration shows quite clearly the method employed in bringing the bone ends into apposition. The two bones are grasped by the clamps, *A* and *B*, these clamps then being attached to their respective carriages and held fast by means of heavy screws. Numerous anchoring points in the side of the clamps permit the thumb screw of holding the clamps firmly with but little exertion on the part of the operator. By means of a worm gear actuated by hand grips, each carriage with the clamp attached can be moved. Thus the bones can be brought into alignment no matter whether they override or in whatever position they may be. Immense traction can thus be had with very little effort, and once the parts are adjusted, they are held firmly together until plates, splints or grafts are applied or inserted. The instrument is made entirely of steel, and can be easily taken apart for sterilization.

25 East Washington Street.

Special Article

PRACTICAL PHARMACOLOGY*

(*Continued from page 2067*)

XXV

ANTIEMETICS—GASTRIC SEDATIVES

This heterogeneous group, if it can be called a group, of drugs will be discussed briefly. The physiology of emesis which has been discussed in the preceding pages suggests the nature of those agents which may be used to lessen nausea and vomiting, for it is obvious that if emesis results from irritation of the gastric mucous membrane and from stimulation of the vomiting center in the medulla, emollients, demulcents, and other protective agents will lessen the local gastric irritation, and if relief is urgently demanded depression of the central nervous system may be resorted to, though this is seldom necessary, except as a temporary measure, for example, when it becomes necessary to prevent vomiting while administering a drug by the stomach.

Unfortunately, we have no drug which depresses the vomiting center without causing an undesired depression of other nervous centers.

Occasionally vomiting results from reflexes arising elsewhere than in the stomach and other measures than those just mentioned must be employed, for it is well known that foul odors and other purely psychic influences may cause nausea and vomiting. Psychic influences may contribute to gastric disturbances, or may prolong them even when they are not alone sufficient to induce actual emesis, and attention should be paid to such influences.

Heat and humidity in the atmosphere interfere with digestion and contribute markedly to nausea and vomiting when there may be another exciting cause.

Vomiting occurring after ether anesthesia usually ceases spontaneously after the mucus which has been swallowed is expelled but emesis occurs frequently when food is taken some hours after chloroform anesthesia. Hot water—not tepid—should be sipped, or a glassful may be drunk if small amounts do not give relief. Cracked ice is sometimes more serviceable than hot water. Thirst following chloroform anesthesia may be relieved by drinking hot water, when it is taken easily, but as this causes diuresis, which may or may not be indicated, and since the taking of rather large quantities of water tends to tax the stomach unduly, rectal injections of warm water may be used to avoid gastric irritation, warm water being retained better than cold.

Infants regurgitate milk without indications of gastric disturbance, when more than sufficient is taken, but when vomiting with distress occurs, due to gastric disturbances, it may indicate the need of substituting barley water for the regular food for a day or two.

When vomiting is secondary to diphtheria it is said to indicate cardiac weakness demanding urgent relief for the heart.

Vomiting occurs in nephritis and disturbances of other organs in which the stomach is not irritated directly, and if the emesis is severe and persistent it may call for sedatives for the vomiting center, in which case morphin may be injected subcutaneously.

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* This is the twenty-fifth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

Cyclic vomiting has been described as accompanying a variety of symptoms, and is probably not dependent on a single cause. Its treatment cannot be discussed here as the symptoms are too various and these call for separate treatment.

The vomiting of pregnancy often taxes the resources of the obstetrician, and occasionally it cannot be relieved by any means short of terminating the pregnancy. It would be profitless to enumerate all of the drugs which have been suggested for the relief of this symptom, for such a list would be little less than a catalogue of the materia medica. Hygienic and dietary measures appear to be the main dependence in such cases. Psychic influences play an important rôle in this condition. Cerium oxalate gained a certain degree of popularity in the relief of vomiting from this and other causes, but there is no evidence that it has any therapeutic value.

Nausea and vomiting which result from indigestion require rest for the stomach, which should be emptied by washing with a weak alkali if the vomiting does not suffice to remove mucus. A weak solution of sodium bicarbonate may serve the double purpose of dissolving the mucus and causing its removal by vomiting, when there is ineffectual retching.

When there is gastric catarrh, requiring protectives, bismuth subnitrate or subcarbonate may be used; these are preferably administered in the form of powders or mixtures and are not advantageously given in compressed tablets or even in the form of capsules. Acidity may be neutralized by lime-water, magnesia, or by a solution of sodium bicarbonate.

Depressants of the vomiting center include hydrated chloral, morphin and opium and cocain, and in fact, probably all hypnotics and general anesthetics.

EXPECTORANTS

The respiratory passages are lined with ciliated epithelium, and normally the secretions of the mucous glands are moved toward the mouth (or anterior nares) by the movement of the cilia, but when the secretions in the smaller air passages become excessive during inflammation, or when they become thick and tenacious, the cilia are incapable of effecting their removal, and coughing is induced. If the secretions become excessively viscid even coughing may be incapable of effecting their removal and it becomes necessary to liquefy them by increasing the secretion of mucus or by means of alkalies.

As previously stated, all nauseants increase the secretion of mucus, hence in practice we choose an agent which has a persistent nauseant action, with a minimum depressant effect on the central nervous system.

Antimony and potassium tartrate is absorbed very slowly from the gastro-intestinal tract, hence small doses suffice to induce prolonged nausea of slight degree, and it is commonly used in the form of a solution or the compound mixture of glycyrrhiza in the early stages of laryngitis and bronchitis when the secretion is usually scanty and the cough troublesome.

The choice of expectorants is often largely empirical; we do not know whether any of them stimulate the cilia to increased activity or not, and it has been suggested that some of them may act on the smooth muscles of the alveoli and terminal bronchioles in the lungs, increasing their peristaltic movements and forcing mucus accumulations into the bronchi, as the alveoli and the terminal bronchioles are not provided with cilia.

Many salts, including sodium chlorid, ammonium chlorid, and potassium iodid, increase the secretory activity of the mucous glands, effecting the liquefaction of the mucus through the alkalies contained in the secretions, and by diluting these with the increased fluids secreted.

It seems probable that the especial usefulness of ammonium chlorid as an expectorant may depend partly on the formation of very small amounts of ammonium carbonate in the bronchial mucous membrane, which is especially effective in liquefying tenacious mucus.

A cough which is merely sufficient to remove the secretions from the air passages does not call for treatment, but when there is considerable irritation with frequent coughing while the secretion is scanty, sedatives, such as codein, are indicated. In some cases it is desirable to increase the secretion by means of a nauseant while diminishing the irritation with a sedative to the point that the cough will just suffice for the removal of the secretion.

Patients frequently demand relief from cough when free secretion contraindicates interference.[1]

Excessive bronchial secretion may be lessened in various ways; atropin depresses the vagus endings in the glands; various volatile oils including the oils of turpentine, of cubebs, and of copaiba are sometimes used, but terpin hydrate has almost completely supplanted the volatile oils for this purpose. Balsam of Peru, benzoin, creosote and other irritants are used in this way.

Syrup of tolu and syrup of wild cherry are little more than vehicles, the hydrocyanic acid in the latter being present in the merest traces and without therapeutic effect.

The compound syrup of white pine of the National Formulary contains chloroform and morphin in addition to extracts of white pine, wild cherry, sanguinaria and other substances—a typical "shot-gun" mixture of nauseants, depressants of the respiratory center and stimulants of the bronchial mucous membrane.

Sore throat is best treated with gargles, sprays, or demulcents in the form of lozenges. A dilute solution of hydrogen peroxid is useful for cleansing the throat, or a hot 5 per cent. solution of potassium chlorate may be used as a gargle; to this may be added a few drops of solution of ferric chlorid. Small ulcers or areas of inflammation in the throat may be swabbed with cotton dipped in a mixture composed of one part of solution of ferric chlorid to ten parts of glycerin.

The official lozenges of ammonium chlorid are useful in treating sore throat but it is not easy to explain the effect of the ammonium chlorid in that case.. Lozenges of elm bark allay slight irritation of the throat.

There are few conditions in which self-medication and its unfortunate consequences are more common than in coughs and "colds," and there is a striking similarity between the composition of nostrums advertised to physicians in numerous medical journals and that of the patent medicines, so-called, which are advertised directly to the public. It is obvious that it matters little, so far as the consequences are concerned, whether the patient doses himself with Ayer's cherry pectoral or Jayne's expectorant, or has compound syrup of cocillana or glyco-heroin (Smith) prescribed for him by a physician.

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[1] The following incident illustrates the unfortunate results of interference in such cases. A patient suffering from a cough with free secretion received a mixture containing morphin, and expressed his satisfaction at the prompt relief afforded. Later he felt greatly discouraged because (as he supposed) he had "caught fresh cold," which he attributed to his low resistance. In fact, the morphin suppressed the cough while the secretion continued, becoming purulent, and the necessary cough returned when the effects of the morphin had passed away.

DOSAGE

The nauseant dose of several of the emetics has been given. The dose of ammonium chlorid is commonly stated as from 0.3 to 1 gm. (5 to 15 grains) but it is much more frequently used in doses of from 0.15 to 0.2 gm. (2 to 3 grains). The troches of ammonium chlorid each containing 0.1 gm. (1½ grains) with extract of glycyrrhiza, tragacanth and sugar, flavored with tolu, afford a convenient form of treatment for sore throat. It may be prescribed for cough (laryngitis or bronchitis) somewhat as follows:

	gm. or c.c.	
Ammonii chloridi	5	+ʒ i
Syrupi acidi citrici..............	50	+℥ iss
Aquae....................q. s. ad	100	+℥ iii

M. Sig.: One teaspoonful every two or three hours.

Ammonium chlorid has a disagreeable taste which is disguised somewhat by the acidity of the mixture.

Ammonium carbonate is given in doses of 0.25 gm. (4 grains). Physicians sometimes overlook the acid character of syrup of squill and prescribe it with the strongly alkaline ammonium carbonate.

A nauseant and sedative may be prescribed together somewhat as follows:

	gm. or c.c.	
Codeinae sulphatis	0|5	+gr. viii
Syrupi ipecacuanhae	30|0	+℥ i
Aquae.... ....q. s. ad	100|0	+℥ iii

M. Sig.: One teaspoonful every two or three hours.

One should avoid the use of too much of the sedative in such cases, as this will lead to the total suppression of the cough. Terpin hydrate is given in doses of 0.12 gm. (2 grains) in powder, capsules or dissolved in elixir.

Many of the patent medicines, so-called, which are sold directly to the public, as well as those which are advertised directly to physicians, contain saponin derived from sanguinaria or other source, and a sedative such as heroin or morphin. No ready-made mixture is suitable for any considerable number of patients, because the doses of nauseants and sedatives should be adjusted carefully to the needs of each patient.*

ARSENIC

Toxic doses of the strongly ionizable inorganic compounds of arsenic cause gastro-enteritis with vomiting, diarrhea and abdominal pain, these symptoms being commonly delayed for half an hour or more. The first symptom frequently is a feeling of constriction in the throat with difficulty in swallowing. The evacuations are normal in appearance at first but later become watery and contain shreds of desquamated intestinal epithelium closely resembling the "rice-water" stools of Asiatic cholera. The fluid, unlike that of simple diarrhea induced by saline cathartics, consists of the serum of the blood, or it may also contain some blood, and this loss of serum results in a train of symptoms closely resembling those of actual hemorrhage. There is weakness, dizziness, headache, cold sweat and collapse. The features are pale and shrunken, the pulse weak, the respiration deep, later depressed. The symptoms are intensified until coma and death occur. Convulsions may occur (asphyxial) or they may be absent. The urine is commonly diminished or totally suppressed, because of the increased viscosity of the blood and the lowered blood pressure. Death may result from either circulatory or respiratory failure, that is, either the heart or the respiration may fail first, but when both are affected so profoundly each reacts upon the other, so that one cannot say that either alone is the cause of death.

The gastro-intestinal symptoms have been attributed to the local irritant action of arsenic, but they are now considered as the effects following absorption, and are explained in the following way: Arsenic causes paralysis of the walls of the capillaries, and later those of the arterioles, especially of the splanchnic region, rendering them more permeable than normally, so that there is a copious effusion of serum or even of blood, into the tissues. After the administration of very large doses of arsenic to animals one may observe extravasations of blood beneath large areas of the peritoneum. The escape of serous fluid raises blisters beneath the gastro-intestinal mucous membrane, and this is soon desquamated with the escape of large amounts of serum into the stomach and intestine, causing the "rice-water" diarrhea. The diarrhea and its attendant pain and loss of water cause a great fall in the blood pressure, and this is later augmented by the direct action of the arsenic on the heart, should the patient survive long enough for this action to take place.

Such serious disturbances of the circulation are always attended with corresponding depression of the central nervous system; especially is this true when the circulatory changes are induced suddenly. One has only to recall the frequency of dizziness due to interference with the cerebral circulation when one rises suddenly from a sitting or recumbent position, to appreciate that the great loss of serum in arsenic poisoning and the resulting circulatory disturbance must cause a variety of secondary effects.

If vomiting occurs early the symptoms may be of almost any degree of severity, because much, or comparatively little, of the arsenic may be evacuated thereby, dependent partly on the amount which has passed into the duodenum, or the poisoning may take on an extremely chronic character, even from a single dose.

There should be little difficulty in diagnosing chronic arsenic poisoning following the typical symptoms of acute poisoning, or where it is known that a large dose of arsenic has been taken, but the symptoms resulting from the repeated administration of very small amounts are often obscure and require patience for their recognition.

The symptoms of acute and chronic arsenic poisoning are detailed in almost all text-books of pharmacology and materia medica, and every physician should familiarize himself with these symptoms because of the frequency with which this type of poisoning occurs.

It will suffice for our purposes at present to enumerate some of the symptoms of the chronic type, merely to show the necessity for more careful study than it commonly receives. The symptoms are sometimes divided into three stages; in the first there is lassitude, loss of appetite, and there may be nausea and vomiting. This stage might lead one to suspect the presence of typhoid fever. The intestinal symptoms may be present, or they may be absent. In the second stage there may be symptoms resembling those of a "cold" owing to the irritation of the mucous membranes of the larynx and nose and of the conjunctiva. Various affections of the skin are described as occurring in this stage, including a typical discoloration or blackening.

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* Owing to lack of space the materia medica of this group is omitted from The Journal. It will be included when this series is issued in book form.

In the third stage there are disturbances of sensation and motion in the hands and feet, and peripheral neuritis, together with numerous other manifestations which require careful consideration. The symptoms are not sharply marked off in the stages mentioned, but many of those commonly described as belonging to the second or third may appear earlier than this classification would indicate.

When vague symptoms lead one to suspect even the possibility of chronic arsenic poisoning the urine should be examined for traces of the metal. Of course one would not expect to obtain evidences of the poison by the grosser tests, but, on the other hand, the most delicate tests enable one to detect the faintest traces of arsenic in the urine. Such traces have comparatively little significance unless this evidence is supported by others of great weight, because traces of arsenic may be derived from foods containing it, either as a natural or as an added ingredient.

Chronic arsenic poisoning is attended with degenerative changes in the walls of the capillaries and later in the intestinal epithelium, and in various organs, including the heart, liver and kidneys.

Icterus results from the changes in the liver, and effusions occur in various tissues, that into the eyelids being usually early and fairly characteristic. The damage to the heart may fail to attract attention in the presence of other symptoms, such as nephritis, to which the attention may be mainly directed if the true cause of the trouble is not suspected.

The toxicology of arsenic is interesting from various standpoints. It played an important rôle in the crimes of professional poisoners in earlier times, and it is still employed occasionally for purposes of murder and suicide. It lends itself, unfortunately, to the poisoning of one member of a household by another when small doses can be administered frequently, because, owing to its tastelessness and lack of odor, it does not arouse suspicion and is all too easily obtained in the form of rat poison. All arsenic preparations which might be used in this way should be colored distinctively by the addition of lamp-black or indigo which cannot be mixed with most foods without attracting attention.

Fortunately, the metal can be detected in the vomitus, urine and feces, and in the cadaver long after death, so that it is probable that few adults die of acute arsenic poisoning without the fact becoming known.

The treatment of acute arsenic poisoning requires further investigation. It was accepted for many years as an established fact that as soon as possible after a poisonous dose of arsenic had been swallowed the patient should receive a large dose of moist ferric hydroxid, or preferably, the hydroxid with magnesia, which can be prepared more conveniently and quickly, when the materials are at hand.

Serious doubt has been thrown on the value of this procedure during the past few years, and the stomach should be washed out as promptly as possible whether the iron antidote be employed or not. Active catharsis should be induced with magnesium sulphate solution in order to remove any of the poison that has passed into the duodenum. Since prompt purgation is necessary in such cases, a large dose of the dilute solution of magnesium sulphate should be administered — preferably a pint of solution containing about an ounce of the salt. Naturally, purgatives are contraindicated after the intestinal symptoms have developed.

The elimination of arsenic depends somewhat on the way in which it is administered. When a toxic dose has been taken by the mouth the larger part may be evacuated with the vomitus, or with the washings of the stomach, and a large part of the remainder may be evacuated in the feces, especially if prompt purgation is induced. After absorption into the circulation arsenic may be found in almost all the body tissues. Elimination goes on very slowly indeed, so that months may elapse before it ceases to appear in the secretions, and some of it appears to be retained almost indefinitely.

A larger portion of the poison is said to be eliminated by the intestine after its oral administration, and a smaller part of the urine, but after the subcutaneous injection the kidneys eliminate more than the gastrointestinal tract. Diuretics should be administered after the subcutaneous injection of a poisonous dose if the patient is seen early, but caffein and theobromin will have little or no effect after the appearance of the "rice-water" stools because of circulatory disturbances previously mentioned; hence it would seem probable that the intravenous injection of a 2 per cent. solution of sodium sulphate, as mentioned in connection with strychnin poisoning, might be of benefit, but we are unaware of any experiments bearing on the subject.

The extraordinarily slow elimination of arsenic and its consequent tendency to accumulate in the body and to produce chronic poisoning are of especial interest in connection with the uses of arsenic in fabrics, and food preservatives.

A manufacturer of a food product used anilin to color it, the finished food as eaten containing about one part of arsenic in 20,000 million parts of food. He was probably unaware of the presence of arsenic in the anilin, and it would require about 1,000 tons of the food to furnish an amount of arsenic equal to a toxic dose for a man; nevertheless it was maintained that the practice was unlawful, though it could hardly be held that enough arsenic could be taken in that way to produce any perceptible effect in a life time, especially, as arsenic is frequently taken over long periods for its medicinal effect. Quite a different case was that of a manufacturer whose candy was found to contain six parts of arsenic per million. One pound of the candy contained as much as an average dose of arsenic for an adult, and its continued use in large amounts might very well cause symptoms.

In seeming contradiction to the preceding statement is the well-known fact that the administration of small and increasing doses of arsenic by the mouth leads to a higher degree of tolerance, apparently through an acquired resistance to absorption from the gastrointestinal tract, for such tolerant animals are not more resistant than others to arsenic administered subcutaneously. Remarkable stories of tolerance are commonly told of the arsenic eaters of the Tyrol.

As little as 0.1 gm. (1½ grains) of arsenic has proved fatal, but very much larger oral doses have been survived, and if vomiting occurs within less than half an hour after a fairly large dose has been swallowed the chances of recovery are fairly good, but of course one cannot depend on this alone, and other treatment should be institut [illegible] stated. There is an unfortunately [illegible] among the laity that larger doses of arsenic may be safer than smaller, but toxic ones. This is doubtless based on the fact that large doses do occasionally induce emesis in time to save life, while smaller doses may prove fatal.

In view of what has been said of the widespread use of arsenic in the arts, in medicine and in foods, with the consequent frequency with which at least small amounts may be taken without the knowledge of the patient, and the extreme slowness with which elimination takes place, it is obvious that the detection of traces of arsenic in the excreta or in a cadaver does not prove that observed symptoms or death resulted from arsenic in a given case, and one will understand the necessity of a careful study of the actions of arsenic before expressing opinions that may be of far-reaching importance.

The administration of small amounts of arsenic to young animals may cause them to grow more rapidly than other members of the same litter that receive the same food without the arsenic. Several observers found that the bones of the animals that received arsenic were longer and thicker than those of the controls; that their fur was glossier and other evidences of rapid development were also observed, but these effects are not always obtained and other investigators came to different conclusions with regard to the effects of arsenic on metabolism. Poisonous doses cause fatty degeneration in various organs, and other disturbances of metabolism.

Various explanations have been offered to account for the more rapid growth observed as the result of the use of arsenic, but it seems possible that the actions on the capillaries and the effects on the general circulation together with the stimulation of production of red blood corpuscles or of hemoglobin are concerned in the effects on metabolism.

It also seems possible that arsenic may serve to correct some adverse conditions entailed in those feeding experiments in which the greater growth was observed, for it does not seem probable that arsenic would influence growth favorably if the animals were kept under the best conditions of living and exercising in the open air. At least, no one would think of advising the routine administration of arsenic to healthy little children living under hygienic conditions.

Certain of the organic compounds of arsenic which ionize but little are much less active than the inorganic compounds that have been discussed. Cacodylic acid, which differs from arsenic acid by having two methyl groups in place of two hydroxyls of the latter, has long been known, the sodium salt having been introduced about fifty years ago. Sodium arsanilate was introduced into therapeutics in 1902 under the name of atoxyl under the mistaken impression that it was nontoxic. It exerts the arsenic action, though less violently than arsenic trioxid in equal weights, and in addition it is prone to cause blindness through atrophy of the optic nerve. When atoxyl was submitted to the Council on Pharmacy and Chemistry its composition was investigated, and it was shown that the arsenic is not present in the trivalent state as had been supposed, but in the pentavalent.

Following the introduction of organic compounds of arsenic, Ehrlich investigated a large number with the object of finding one capable of exerting the well-known trypanocidal action of the metal without the toxic action on the host, or at least of finding a compound in which the relative toxicity for the parasite and the host would permit of the administration of a single dose that would at once destroy all the micro-organisms in the blood.

As a result of this search Ehrlich and his co-workers brought out salvarsan, or arseno-benzol, more correctly called arsen-phenol-amine hydrochlorid. It has also been named "606" in reference to the laboratory number given the compound.

From the results of the early studies it was announced that a single dose of salvarsan was capable of destroying all of the micro-organisms of syphilis in the human body in suitable cases. It was also highly extolled in the treatment of various other diseases, including relapsing fever, and at the same time it was said to be relatively harmless to man in the dosage advised.

The literature relating to salvarsan is already enormous, and while it is not feasible to review this even partially, it may be said that a single dose apparently effects a complete cure only when it is given shortly after infection, if at all, and that it is far from being harmless, numerous deaths being undoubtedly attributable to its use even with the most careful technic.

Unfortunately, the spirochetes of syphilis may become more resistant than normal to arsenic after repeated doses, and it is usually necessary to combine the use of arsenic with that of mercury.

Neosalvarsan is a soluble compound of salvarsan thought by some to be tolerated better than the original product.

THERAPEUTIC USES

Arsenic trioxid is applied to ulcerated surfaces as an irritant, but its use is attended with severe pain. It has long been used in domestic practice and occasionally by physicians as a caustic for the removal of malignant growths, in the form of pastes. The action cannot be controlled accurately, it is very painful and there is some danger of the absorption of a poisonous dose when it is applied in this way. Its use is not recommended. It has long been employed and is still used as an application to ulcerated surfaces and by dentists for destroying the nerves in carious teeth.

It is used internally in a variety of disorders in which its mode of action cannot be explained satisfactorily. For example, it is used in neuralgia of a periodic character, and in chorea, in which it is of doubtful value. It is used in anemia, in which it probably stimulates the organs involved (bone marrow) to a more rapid regeneration of the red blood corpuscles or the hemoglobin. It is also used in pernicious anemia, in leukemia and in Hodgkin's disease (malignant lymphoma, or hypertrophic disease of the lymphatic glands of the body, attended with anemia). In these diseases its temporary effects are often markedly beneficial, but relapses almost invariably occur.

It is often used to improve the nutrition when the disturbance results from obscure causes, but, of course, it is not suited for use in all of those cases.

It has been recommended for use in diabetes, but like other drugs, it usually fails in that condition.

Arsenic is said to be useful in various skin diseases, such as psoriasis, lichen planus, chronic eczema, pemphigus, dermatitis herpetiformis, chronic urticaria and disturbances involving the sweat glands. It must be remembered, however, that the treatment of skin diseases by the general practitioner involves many difficulties because of the obscurity of the etiology in these conditions, hence they should be treated by dermatologists when they present unusual difficulties or conditions with which the practitioner is unfamiliar.

Attention has been called to the fact that the fur of animals used in experiments with arsenic was glossier than that of the controls, and horse dealers have long utilized this action of arsenic in improving the coats of horses. These results suggest the use of arsenic in man when there is faulty nutrition of the skin.

Acute inflammation of the skin contraindicates the use of arsenic.

The organic compounds of arsenic have a distinct field of usefulness in various diseases of protozoal origin, including sleeping sickness (trypanosomiasis), malaria, relapsing fever and syphilis, but the side actions, especially that on the optic nerve (with atoxyl), have greatly interfered with its use.

Arsenic has long been used in malaria, especially in the chronic forms which have resisted quinin, arsenic and quinin being commonly used together in those cases.

The cacodylate attained to some degree of importance many years ago when it was found that it exerts the actions of arsenic over a longer period than the inorganic forms and that it is less toxic.

Sodium arsanilate was used extensively for a time in the treatment of sleeping sickness but numerous cases of blindness resulted, and it has fallen into disuse for that purpose.

Salvarsan is widely used in the treatment of syphilis; it is given alone soon after infection or in combination with mercury in the later stages. It is also employed in the treatment of relapsing fever and in many other conditions, sometimes with good results, sometimes with harmful effects.

The results reported soon after the introduction of salvarsan raised hopes which subsequent experience proved were far too optimistic, but when the early literature has been discounted sufficiently we still have in it a valuable remedy.

Headache, nausea and malaise commonly follow the intravenous injection of salvarsan, the symptoms lasting for from twelve to twenty-four hours. Aside from these after-effects certain nervous effects have been observed. These symptoms — termed nervous relapse — are believed to be due to an increased activity of the spirochetes and they call for another dose of salvarsan or treatment with mercury.

Arsenic is sometimes used in the most diverse conditions including asthma, tuberculosis, bronchitis, leukemia, splenic anemia, and in numerous other diseases, and one is led to suspect that when improvement follows its use in those conditions it is merely a coincidence or that this improvement is attributable to the effects of arsenic on metabolism in general rather than to any direct effect on the diseased organs or the causes of the disease.

All forms of arsenic should be used cautiously or not at all in the presence of disease of the eye, especially of the retina, even if it be of syphilitic origin, because of its tendency to induce optic neuritis and blindness, but salvarsan is said to cause optic neuritis in few instances. Arsenic is contraindicated in severe cardiac and renal disease, and salvarsan cautiously used in syphilitic infants because of the danger from liberated endotoxins when the spirochetes are destroyed.

DOSAGE

For ordinary affections of metabolism or for a tonic influence arsenic trioxid is given in doses of from 0.001 to 0.002 gm. (1/60 to 1/30 grain). In diseases of the blood the dosage should be regulated according to the effect, but it is well to use as large doses as the patient will tolerate.

The various forms of inorganic arsenic are frequently administered in increasing doses until symptoms of mild intoxication appear. One may begin with 0.003 gm. (1/20 grain) of arsenic trioxid, three times a day, and increase by 0.001 gm. (1/60 grain) three times a day.

Solution of potassium arsenite and solution of arsenous acid may be given in doses of 0.2 c.c. (3 minims) three times a day, and increased by 0.05 c.c. (1 minim) three times a day. A slight toxic effect is indicated by nausea, colicky pains or a puffiness under the eyes. The presence of albumin in the urine may also be observed. Such symptoms may make it advisable to discontinue the administration of the drug for a time.

Solution of arsenous and mercuric iodids is usually administered in doses of 0.1 c.c. (1½ minims).

Sodium arsenate is given in doses of 0.003 to 0.005 gm. (1/20 to 1/10 grain) three times a day and increased as with other preparations of arsenic.

Of the organic combinations of arsenic, sodium arsanilate, (atoxyl, soamin), is given in doses of 0.02 gm. (1/3 grain) gradually increased, and sodium cacodylate may be given in doses of 0.03 gm. (½ grain). The former of these two products is used only by injection; the latter is frequently administered hypodermically though it may also be administered by mouth.

The dose of salvarsan is 0.5 gm. (7½ grains). Since it is not suited for oral administration it must be given intravenously, subcutaneously or intramuscularly, but intramuscular injections have been followed in several instances by the toxic effects of arsenic; furthermore, the intramuscular injection is painful and is usually followed by a painful inflammatory nodule which persists for some time. It is seldom employed by those who have mastered the technic of the intravenous injection and no one should undertake to administer salvarsan intravenously without having mastered the somewhat difficult technic.

Salvarsan, being acid, is neutralized and suspended in a neutral fluid for subcutaneous or intramuscular injection. A clear solution in sterile alkaline fluid is used for intravenous injection.

The powder decomposes rapidly on exposure to the air, and suspensions and fluids intended for injection should be used at once. If any part of the contents of a tube remains unused when a dose is administered it should under no circumstances be mixed with a subsequent dose but should be thrown away. Even those tubes that are cracked before being used, permitting the action of the air, should be rejected. The water used for making intravenous injections should be distilled shortly before being used. Various forms of apparatus are advised by different authorities, but most of the apparatus employed for the injection can be had in any first class pharmacy or instrument maker's shop.*

(To be continued)

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* Owing to lack of space the materia medica of this group is omitted from The Journal. It will be included when this series is issued in book form.

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SATURDAY, JUNE 26, 1915

On account of the large amount of space occupied by the Index in this issue of The Journal, certain departments have been omitted entirely and others abbreviated. The distance from The Journal office of the place of the annual session, together with the fact that this is the last number of the current volume, makes it desirable to omit the publication in this issue of any of the minutes. An effort will be made, however, to present in the next issue — July 3 — a complete report of the proceedings of the session.

THE INDEX

This issue of The Journal contains the index to the current, or sixty-fourth volume of The Journal, including the current medical literature which has been listed from week to week. Original articles in the leading medical journals of the United States and the principal foreign countries are included under the latter head.

In the author index appear the names of all who have contributed articles to The Journal or to any other journal listed in the current literature department, and the names of those whose papers are abstracted in the medical society reports in The Journal. In the subject index are complete references to all reading matter in The Journal, and references to original articles in all the domestic and foreign journals listed. To facilitate the use of the Index, not only are titles arranged under the subject of the article with double entry when necessary, but also there are numerous cross-references. The figures in boldface type refer to reading matter in The Journal.

The Index appears in pamphlet form[1] under the title "Guide to Current Medical Literature." This pamphlet contains, in addition to the author and subject indexes published in this issue of The Journal, the titles of the articles listed, arranged chronologically and by journals, as in the Current Medical Literature department. It is issued in separate form for convenience — to make it unnecessary to handle the bound volume of The Journal.

Just preceding the Index is a list of the journals indexed during the past six months. Any foreign journal, except those preceded by a star, will be lent by The Journal to subscribers and Fellows of the American Medical Association in the United States, with the understanding that such journal will not be retained by the borrower over three days. Requests for journals should be addressed to the Library of the American Medical Association, and six cents in stamps should be enclosed to cover the average expense of mailing. No domestic journal will be lent, as these can be obtained direct from the publishers as easily and as quickly as from The Journal. The addresses of the domestic journals are given.

It will be noted that in the Index in this number of The Journal there is a marked increase in the number of headings devoted to war subjects. The words "soldiers," "war," "army," "wounded," "wounds," "typhus," "tetanus," etc., are followed by numerous references occupying from three to ten times the amount of space devoted to them in previous indexes.

FOURTH OF JULY ANTICIPATIONS

The conflagration in Europe modifies all American events, and it will be of interest to observe its effect on our annual mimic warfare of July 4. Will the general depression of spirits and resources reduce the amount of explosive exuberance, or will the increased familiarity with gunpowder and bloodshed increase our notorious contempt of human life and suffering? The Journal has collected statistics on the injuries of the Fourth for twelve years, and the curve is now well enough established to indicate very clearly the annual extent of the old-fashioned celebration. Last year, for some unexplained reason, there was a slight increase in the total number of accidents and deaths, there being 1,506 accidents and forty deaths in 1914 as against 1,163 accidents and thirty-two deaths in 1913. Of the accidents last year, Pennsylvania with 487 and New York with 250 accounted for nearly half the total Independence Day devastation of the country, and it is in these two states especially that improvement must be made. Since The Journal first began to compile these statistics, Pennsylvania has always led in the number of accidents, usually by a wide margin. It has been suggested, perhaps facetiously, that this is the outcome of the possession of the Liberty Bell and the traditions of the Cradle of Liberty; if so, there is naturally a doubt whether the possession is worth the price. It has been certainly demonstrated that a community which wishes to free itself from this sort of destruction of person and property can do so. Not a few large cities have found it possible to pass through the Fourth without a single accident. It follows, then, that the number of Fourth of July accidents is the measure of the effort made by a community to rid itself of this long-suffered nuisance.

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[1] The Guide to Current Medical Literature may be obtained from the Association office at 50 cents a copy.

This year one factor may make for an increased number of accidents — the occurrence of the Fourth on Sunday, which results in two days of celebration in many communities. We must, therefore, be prepared to do our part in reducing the number of fatalities from these accidents. The reduction in the total number of deaths from tetanus to three in 1914, as compared with 150 cases in 1909 and 417 in 1903, is far out of proportion to the reduction in the number of accidents from which tetanus might have resulted. This indicates that the medical profession has learned how to prevent this most frightful sequel of injuries, and is fully alert to the dangers that reside in Fourth of July wounds. The European war has demonstrated on a hideously large scale the frequency of tetanus in unclean wounds and the great value of tetanus antitoxin in prevention, especially when its use supplements adequate surgical cleansing of the wounds. The importance of this point need not be dilated on, as was necessary twelve years ago, when neither the danger of tetanus nor the efficacy of antitoxin as a prophylactic was generally recognized. The same may be said of the intraspinal injection of tetanus antitoxin in developed cases of tetanus. This is now a recognized procedure which unquestionably gives results far superior to those obtained by any other method of treatment. At the recent meeting of the Association of American Physicians in Washington, Nicoll reported that of twenty patients treated in the New York City Department of Health by intraspinal injection of antitoxin, there had been but four deaths.[1] Improved results have also been reported from the military hospitals of Europe from the intraspinal administration of tetanus antitoxin.

It may be well also to repeat the instructions outlined a year ago,[2] for the prophylaxis of tetanus in Fourth of July injuries:

1. Carefully and thoroughly remove every particle of foreign matter from the wound, laying it open; an anesthetic should be given if necessary.
2. Dry the wound thoroughly, and paint it and the surrounding parts as carefully as possible with iodin, or else cauterize it thoroughly with a 25 per cent. solution of phenol (carbolic acid) in glycerin or alcohol.
3. Apply a loose wet pack, using a solution of some such antiseptic substance as boric acid or alcohol.
4. As soon as possible inject intravenously or subcutaneously 1,500 units of antitetanic serum and continue the injections if indications of possible tetanus arise.
5. In no case close the wound. Allow it to heal by granulation. Remove the dressings and packing each day and apply fresh ones.

VACCINE THERAPY IN TYPHOID FEVER

It is difficult to arrive at a just estimate of the value of vaccines in the treatment of typhoid fever, because the evidence for and against their use is derived from two widely different sources. From a theoretical standpoint, such a procedure has little justification. It is well known that there is an extensive invasion of the blood by the infecting organism early in the course of the disease, and it seems reasonable to assume that these invading organisms furnish sufficient antigenic stimulus to cause the maximum antibody formation. On the other hand, if this antibody formation is delayed early in the course of the infection, vaccines may be of value in stimulating such a response. In the field of clinical medicine, many observers have reported striking results from the use of vaccines, and it is the common opinion of these clinicians that they are efficacious in the treatment of typhoid fever.

The clinical data in the literature pertaining to this phase of the treatment of typhoid fever have recently been reviewed by Krumbhaar and Richardson[1] of Philadelphia. This analysis includes more than 1,800 cases, and in 95 per cent. of these, favorable results were observed. Thirty-five of the thirty-nine observers concluded that the vaccine was useful as a therapeutic measure. In almost all instances, the course of the infection was favorably influenced, and in many series the mortality was reduced. In a series treated by Petrowitch, the mortality was 3.2 per cent., as compared with 8 per cent. in 220 unvaccinated patients. Krumbhaar and Richardson used vaccines in the treatment of ninety-three typhoid patients in the Pennsylvania Hospital during the past three years. Their results were so promising that they consider the use of vaccines an important procedure in the routine treatment of the disease. The symptoms were rarely altered beyond a transitory rise in temperature; but relapses and complications were diminished in frequency, and when vaccine treatment was instituted early in the course, there seemed to be a favorable influence exerted on the intensity of the infection. Since agglutination is often absent during the first two weeks of the attack, these investigators assume that antibody formation is often delayed, and that by the use of vaccines an early activity of this process can be brought about. The experiments of Gay and Claypole also suggest that there may be a hyperleukocytosis following the injection of a vaccine during the course of typhoid fever. Should these experiments receive confirmation, a good theoretical basis would be afforded for vaccine therapy in typhoid.

The type and dosage of the vaccine have had no apparent influence on the results obtained. Sensitized vaccines have been strongly advocated by Besredka,

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[1] Nicoll, Matthias: Intraspinal Administration of Antitoxin in Tetanus, The Journal A. M. A., June 12, 1915, p. 1982.

[2] The Prophylaxis of Tetanus, Current Comment, The Journal A. M. A., June 20, 1914, p. 1971.

[1] Krumbhaar, E. B., and Richardson, R.: Am. Jour. Med. Sc., 1915, cxlix, 406.

Metchnikoff, Garbat and others, and on theoretical grounds such vaccines would be favored; but the majority of investigators have had good results with suspensions of dead bacteria prepared according to Wright's method. Although autogenous vaccines generally have been preferred, stock vaccines prepared from organisms selected for their high agglutinogenic power have been efficacious in the hands of many. Reports, however, have been so uniformly favorable with all preparations, that it seems as if the type used is of secondary importance. The dosage has also varied widely with different investigators. Semple, Waters, Petrowitch and others used small doses, while Foster, McArthur, Fletcher and Meakins obtained equally good results with large doses. Krumbhaar and Richardson gave 500 million as an initial dose and two or three larger doses at short intervals. They conclude that their results were more favorable in the cases in which large doses were given. The dosage, however, must be gaged by the general condition of the patient. When the patient is very toxic, only small amounts of vaccine can be used with any degree of safety. Previous mention has been made of the remarkable results obtained by Ichikawa from the intravenous injection of sensitized vaccines.[2] Using this method of inoculation, he was able to produce a rapid drop in the temperature to normal and often an early recovery. In his cases, mild intestinal hemorrhages occurred in a few instances following the injections; but these hemorrhages were no more numerous than in the unvaccinated patients. Subsequent investigators[3] also report favorable results from the intravenous method of administration of the vaccine, but they strongly emphasize the danger of a severe general reaction in some instances. Signs of collapse, severe diarrhea and intestinal hemorrhages are complications which have occurred simultaneously with the rapid fall in temperature, and in a few instances there was an unfavorable termination. The ultimate value of this method of administration of vaccines, therefore, is a question which further observations must determine.

Including the recent encouraging reports of Goldscheider and Aust,[4] Rhein[5] and others, the clinical evidence now at hand is derived from careful observations on about 3,000 cases of typhoid fever treated with vaccines. In almost all instances, it seems that some degree of favorable influence could be noticed from their use. The observations of Elmer[6] indicate that vaccines will not prevent the attack, once infection has begun; but it seems probable that their use early in the course of the disease modifies the duration and intensity of the attack. Furthermore, in complications, especially localized typhoid infections such as periostitis and cholecystitis, and in the treatment of typhoid carriers, vaccines are of limited value. In local infections in which there is a secondary invading organism, as in pneumonia and otitis media, typhoid vaccines are probably contraindicated.

Careful bacteriologic and serologic study is an essential prerequisite to vaccine therapy, which requires an exact etiologic and early diagnosis. Before the question of the efficacy of this form of treatment can be settled fully, the mechanism of the action of vaccines in generalized infections needs to be better understood; obviously, this is a problem in the field of experimental medicine. In the meantime, the results at hand, which indicate that, used with discretion, vaccines not only do no harm, but also may be of benefit, should stimulate to further and careful observations.

THE URINARY PROTEIN OF NEPHRITIS

It is conceivable theoretically that the protein present in albuminous urine is derived from the kidney or from the blood through damage to the capillary wall, or is a specific protein distinct from that derived from either the renal tissue or the blood. According to Fischer's widely discussed views, the urinary protein is derived, in part at least, from the renal cells, from which it has been dissolved under the influence of acids.[1] In connection with a current belief that the urinary protein found in nephritis represents serum protein rather than tissue protein, we referred some time ago[2] to the experiments of Salus,[3] who attempted to solve the question by the use of modern serologic or biologic immunity reactions. The technic in this field has become so refined that different proteins from the same animal may possibly be distinguished, and it therefore seemed likely that the controverted questions of the origin of the proteins of nephritic urine could be reached in the same way. Salus prepared a so-called organ plasma, a solution of tissue proteins obtained after completely removing the blood from various organs by Pohl's method. He found that such an antigen is entirely distinct from the antigens of the blood. More specifically, Salus took up the question of the origin of the protein in nephritic urine, and summarizes his results as follows:[4] Antiserum for human kidney contained neither precipitins nor complement-binding antibodies for either human serum or nephritic urine; hence the latter does not contain the antigens characteristic of kidney tissue. Guinea-pigs sensitized with nephritic urine or blood serum did not give anaphylaxis reactions with kidney plasma, and animals sensitized with this plasma were reactive to serum or urine only when the plasma gave distinct reactions for blood. He therefore concludes that the protein of nephritic urine must be serum protein, and not renal tissue protein.

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[2] Present Status of the Vaccine Treatment of Typhoid Fever, Current Comment, THE JOURNAL A. M. A., Feb. 6, 1915, p. 518.

[3] Biedl: Wien. klin. Wchnschr., 1915, xxviii, 125. Paltauf: Wien. klin. Wchnschr., 1915, xxviii, 125. Sladek and St. Kotlowski: Wien. klin. Wchnschr., 1915, xxviii, 389. Reibmayr: München. med. Wchnschr., 1915, lxii, 610.

[4] Goldscheider and Aust: Deutsch. med. Wchnschr., 1915, xli, 361.

[5] Rhein, M.: München. med. Wchnschr., 1915, lxii, 427.

[6] Elmer, W. P.: Study of a Recent Typhoid Epidemic, with Especial Reference to the Use of Antityphoid Vaccines, THE JOURNAL A. M. A., April 3, 1915, p. 1147.

[1] Fischer, M. H.: Oedema and Nephritis, John Wiley & Sons, New York, 1914.

[2] A Controverted Theory of Nephritis, Current Comment, THE JOURNAL A. M. A., June 20, 1914, p. 1971.

[3] Salus, G.: Biologische Versuche mit Organplasma, Biochem. Ztschr., 1914, lx, 1.

[4] We quote from a review by Cameron, A. L., and Wells, H. G.: The Origin of the Proteins of Nephritic Urine, Arch. Int. Med., May, 1915, p. 750.

As these biologic reactions seem to offer the greatest promise of success in determining the identity of individual proteins, The Journal stated editorially that they place the burden of proof on those who maintain that the urinary protein of nephritis is merely the dissolved contribution of kidney cells subjected to an abnormal environment, rather than escaped blood components.

In criticism of these comments, Fischer[5] remarks that Salus concluded correctly from his experiments that the protein in the urines examined by him contained blood proteins. Fischer adds that no one has ever disputed this fact, for hemorrhage through gross rupture of the blood vessels and by diapedesis is common in all types of nephritis. With reference to the failure to obtain reactions indicative of dissolved kidney protein in the urine, Fischer remarks:

> In the face of the fact that it is difficult to prepare a specific antiserum even when kidney substance is used directly, such findings are hardly conclusive. The colloid chemists, moreover, know how alterable in consequence of mere laboratory handling are the reactions of proteins, and so some argument will be necessary to make those of solid organs and of organ extracts synonymous in their minds. Salus himself recognizes these difficulties.

A much more trenchant critique, pointing out the meager and variable character of Salus' fundamental experiments, has been published recently by Cameron and Wells.[6] They are quite unwilling to admit the conclusions of Salus on the basis of what they regard as inadequate proof. In a new attempt to secure further evidence on the disputed points relating to the origin of the urinary protein, these Chicago investigators note that part of the contradiction presumably depends on the difficulties inherent in the available methods for distinguishing, even by the biologic reactions, between different proteins coming from the same animal. A series of experiments by the anaphylaxis method gave no evidence of the existence of antigens in either urine or kidney distinct from each other or from the antigens of human serum. This result, as Cameron and Wells remind us, does not answer the question of the origin of urinary protein, but merely indicates the inadequacy of the anaphylaxis method for the solution of the problem. In fairness, therefore, the questions involved therein must frankly be regarded as still open for review.

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[5] Fischer, M. H.: Oedema and Nephritis, 1914, p. 446.

[6] Cameron, A. L., and Wells, H. G.: The Origin of the Proteins of Nephritic Urine, Arch. Int. Med., May, 1915, p. 746.

DISEASE RESISTANCE IN PLANTS

In matters of health and disease, all living things have intimate relations. The factors that increase resistance to disease in plants can scarcely fail to interest physicians. Probably at least suggestive if not directly valuable hints for the prevention or inhibition of the contagious infections in human beings can be derived from a knowledge of the natural processes by which plant resistive vitality is encouraged. There is, too, a definite assurance that certain serious human diseases—tetanus and the gas-producing bacillary infections—are caused by micro-organisms fostered by plant life, and more than a suspicion that further study may reveal other similar relations.

Dr. Otto Appel[1] has considered the analogies between plant and human diseases, and the problem of resistance. The question of alternation of hosts for certain diseases is a plant as well as a human pathologic feature. The tapeworms and echinococci require an intermediate animal host, and prevention is much easier when the relations between the hosts of the two stages can be regulated. When rust appears in a pear orchard, the danger may be removed by eliminating all juniper trees from the neighborhood, the juniper being the host for the alternate stage of the fungus. The same measure must be adopted to assure prevention in the case of red rust of wheat in countries in which the fungus does not reinfect the wheat directly, but grows in the spring on the barberry. This serious scourge has practically disappeared from Germany since the removal of all barberry and mahonia bushes from districts in which wheat is grown.

Dr. Appel declares, in words familiar to physicians of human maladies, that it is more difficult to cure a plant already diseased than to prevent the disease. Only in rare cases is the method of "cure" known. Plants are not organized like animals, and in most cases it is impossible to influence a central system. Even with that possibility, physicians find "cures" difficult enough. Some of the adjuvants in the treatment of disease in plants are suggestive of phases of our medical problems. The cure of fungous diseases of different trees by giving the roots an abundant water supply is an example of treatment based on the principle that "many fungi are unable to grow in tissues which show a high water pressure. In dry soils the water content is kept on a low basis, and this favors the attacks of the fungus." Observant physicians have found this principle, so useful in limiting plant disease, of great value in the treatment of affections due to the growth of low plant life in the human intestines. A dry diet often seems to favor putrefactive processes, while the free taking of fluids not only affects constipation favorably in a mechanical way, but also lessens the growth of disturbing micro-organisms in the intestines.

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[1] Appel, Otto: Disease Resistance in Plants, Science, May 28, 1915.

More important still is the securing of varieties of disease-resistant plants. The method has long been understood, but the application of the principle is only now being successfully applied. The plant specialists, however, are much farther advanced in the solution of their problems than are the eugenic specialists. Of the different species of wheats, the difference in resistance to various serious affections is very marked. As a rule the Western European varieties are resistant, while many of the Eastern varieties are liable to rust. In both regions, however, there are marked exceptions, and the plant found in Palestine some years ago, which has sometimes been regarded as the ancestor of our common cultivated wheat is, curiously enough, a nonresistant species, showing by its survival that individual vitality may surmount dangers that would seem inevitably to doom a plant variety. The subjection to certain diseases of the plants of a region hitherto spared the special contagion is sometimes followed by serious devastation among crops. The corresponding incident in human beings was well illustrated by the ravages of smallpox, of tuberculosis and even of measles among the American Indians when these diseases were first introduced on this continent by the Europeans. Nature has gradually selected the disease-resisting varieties among human beings, so that a certain immunity has developed among peoples long subjected to the contagion of particular diseases.

From a chemical standpoint, the facts concerning plants are suggestive to the student of human disease and immunity. Dr. Appel says:

> A glance at sugars and acids shows that these substances also exert an influence in disease resistance. The presence of benzoic acid in *Vaccinium vitis idaea* is supposed to be the cause of its resistance to fungous diseases. In the same way the tannins have a relation to resistance. This was shown by Behrens in his work on fruit decay, and confirmed by Cook and Taubenhaus. On the other hand, sugar favors the growth of fungi, as is shown clearly in the case of apples and pears. Henneberg even claims immunity for some varieties of potato from certain diseases on account of their high sugar content, but this has not been established beyond doubt.
>
> Finally, the enzymes exert a definite influence on immunity, the oxydases taking the lead. These ferments work directly or indirectly by producing resistant chemical substances.

Everywhere in nature, similar forces are at work, and the same problems must be solved. The outlook for a solution of the involved questions of disease resistance and immunity is more promising when it is seen that many scientific investigators are working from different sides. The most important development of modern biology came when the great principle of the existence of cells was transferred from botany to zoology by Theodor Schwann at the beginning of the nineteenth century. When Virchow took the further step of applying the cell doctrine to pathology, he made perhaps the greatest advance in modern medicine. He used to declare in later life that when these two far-reaching developments were made by himself and Schwann, the rising generation of scientific investigators in Germany were quite as much interested in botanic problems as in microscopic anatomy. It was this breadth of interest, he declared, that gave them the larger outlook which enabled them to look beyond the bounds of what had been hitherto known to newer phases of knowledge.

SOME FACTS ABOUT INSENSIBLE PERSPIRATION

However varied and important the physiologic activities of the skin may be, they usually receive scant consideration in treatises on the functions of the body or in so-called systems of medicine. This is unfortunate for many reasons, and particularly because it tends to inculcate a sort of disregard for certain properties and performances which are peculiar to the cutaneous surfaces and not without significance in medical practice. The sensory nervous mechanism involved in the covering of the body plays a highly important rôle by rendering us appreciative of our environment and responsive to a variety of influences that are wont to react on us. Much of our life of sensation is bound up with the structure of the skin, and many of our reflexes are initiated in relation to it.

These are only a few incidents in the functions of the skin. Its participation in the regulation of temperature all too often lacks appreciation, if one may judge by many misguided practices which are current in connection with the hygiene of clothing and ventilation. Although the sweat glands were discovered by Malpighi[1] as early as 1687, it required a rediscovery[2] of them in man in 1834 to direct attention to the functional possibilities which the secretion of water on the external surfaces of the body actually presents. Even then for some time doubt remained as to whether the glands are concerned with a specific output of water rather than with such activities as the sebaceous glands are now known to represent.

Ever since the days of Sanctorius (1614) the expression "perspiratio insensibilis" has been in use. For him it represented essentially the loss of body weight which could not be accounted for by the visible and weighable excreta. In part this loss obviously is due to a removal of water through pulmonary respiration, together with the excess of exhaled carbon dioxid over absorbed oxygen. There remains for consideration the losses through the skin, some of which become apparent in the form of sweat.

Can water be lost through the skin in any way other than by the mechanism of the sudoriferous glands? Is there a true insensible perspiration represented by a purely physical transport of water through the skin into the surrounding medium? Of course it has long been recognized that even where no visible drops of sweat collect on the cutaneous surfaces, water may be, and usually is being, vaporized from them. It is quite conceivable, however, that in such cases evaporation may keep pace with sweat production and thus give an impression of insensible perspiration without the intermediation of the cutaneous glands.'

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[1] Malpighi: De externo tactus organo, in his Opera omnia, 1687, pp. 203, 208.

[2] Brechet and Roussel de Vauzeme: Ann. d. sc. nat., 1834, ii.

The longstanding uncertainty respecting the origin of water imperceptibly eliminated from the skin was dispelled by a series of observations on human individuals in whom an unusual anomaly of this organ exists. Loewy and Wechselmann[3] have had the exceptional opportunity of studying subjects in whom a defective development has resulted in complete absence of skin glands, so that both sweat and sebaceous secretion were lacking. Here, then, it became possible to investigate the occurrence of loss of water from the skin independently of sweat formation. It was found that such sweat-free persons may experience considerable output of water through the skin. The variations of such a process of elimination are considerable. The quantity may reach 600 grams of water per day for the entire body. This represents a true insensible perspiration — a diffusion of water vapor — following definite physical laws.

The observations made in these unique cases representing, it may be noted, persons having ties of blood relationship and thus exhibiting a hereditary factor in their common skin defect, supplement the facts learned from normal individuals. As a result of the different investigations,[4] it is concluded that the physical loss of water varies greatly in different parts of the body — a fact only recently verified by Galeotti and Macri[5] at the University of Naples. They found the insensible perspiration to be greatest from the surfaces of the hand, somewhat less from the neck and cheeks, and still smaller in relation to the chest and back. According to Galeotti and Macri there is a correspondence, in some parts of the bodies of normal individuals, between the number of the sweat glands and the extent of evaporation from the skin. The parallelism in this respect is, however, by no means complete, so that there is no justification for assuming that the water evaporated is derived solely from sweat glands. Loss of water evidently also takes place through the epidermal layers of the skin, precisely as in the case of the sweat-free subjects of Loewy.

The temperature of the environment often exerts an influence on the evaporation from the cutaneous surfaces in the sense that with increased external temperature the degree of insensible perspiration is augmented. This is, however, not uniformly the case, according to Loewy.[4] He regards the condition of the skin as decisive for the extent of loss of water. With the same external temperature the output will vary with the momentary make-up of the skin, so that it is not regarded as extreme to attribute any influence of the external temperature to its more immediate effect on the cutaneous organ as a whole. In febrile patients the output of water is always greater than in the case of healthy persons.

So far as the loss of water by purely physical processes is concerned, the temperature of the surface layers of the body is the factor of chief importance.

Current Comment

HOW DOES URIC ACID EXIST IN THE BLOOD?

Novelties in the domain of uric acid chemistry and physiology continue to attract attention. Some recent studies by S. R. Benedict[1] of the Cornell University Medical College, New York, he believes, indicate the existence of uric acid in at least two forms of combination in the circulating blood. One part is "free" and represents the quota ordinarily determined by the current procedures for the estimation and separation of uric acid in the blood. In addition to this, Benedict has shown that vigorous treatment, such as is represented by hydrolysis with strong hydrochloric acid, makes it possible to obtain a decidedly larger yield of uric acid. This is taken as an indication of a "combined" uric acid. When ox blood, which has been the chief object of study, is allowed to stand in the presence of a preservative, it shows a marked and rapid increase in the "free" uric acid, with a corresponding decrease in the "combined" uric acid. This strongly suggests the possibility of enzyme action leading to a liberation of uric acid from some more complex combination. The magnitude of the different types is indicated by the figures obtained for ox blood, namely a "free" uric acid content of 0.5 mg. per hundred c.c., and a "total" uric acid content of about 7 mg. Perhaps even more surprising is the report by Benedict[1] regarding the distribution of uric acid between the serum and corpuscles. The results show that it is contained quantitatively in these formed elements. The serum seems to be devoid of traces even, in the case of the ox. This is not true in the case of birds, in which, on the contrary, it is present in the serum alone. One must remember, however, that uric acid plays an entirely different rôle in the metabolism of birds, in which it functions as the characteristic and preponderant end-product of nitrogenous metabolism. The facts alone deserve to be cited. According to Benedict, in ox blood the uric acid is for the most part, if not wholly, in combination and within the corpuscles; while in chicken blood, the uric acid circulates free and is contained in the serum. These findings, if they do not represent some subtle perversity of analytic procedure, call for extensive investigation. Concerning the nature of the alleged combination, the statement is made that it is certainly not protein in nature. If we repeat Benedict's very tentative hypothesis that uric acid, which can be further catabolized, exists in combination in the organism, while that which is to be eliminated as such circulates in the blood in the free state, it must be done with circumspect reserve. This has long been a favorite field for theorizing; and speculation should be subservient to experiment.

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[3] Loewy, A., and Wechselmann, W.: Zur Physiologie und Pathologie des Wasserwechsels und Warmeregulation seitens des Hautorganes, Virchows Arch. f. path. Anat., 1911, ccvi, 79.

[4] Loewy, A.: Untersuchungen über die physikalische Hautwasserabgabe, Biochem. Ztschr., 1914, lxvii, 243.

[5] Galeotti, G., and Macri, N. M.: Ueber die Perspiratio insensibilis unter normalen und pathologischen Bedingungen, Biochem. Ztschr., 1914, lxvii, 472.

[1] Benedict, S. R.: Studies in Uric Acid Metabolism, I, On the Uric Acid in Ox and in Chicken Blood, Jour. Biol. Chem., 1915, xx, 633.

FACTS ABOUT RATTLESNAKE VENOM

Although rattlesnake poisoning has lost most of its former prominence as a cause of death in the United States, the toxic agent itself continues to be a source of scientific interest. Certain points in regard to its action have been debated. Thus it has been asserted[1] that the venom of the rattlesnake is toxic to this species itself. Recently, however, Welker and Marshall[2] of the Robert Hare Chemical Laboratory at the University of Pennsylvania, Philadelphia, have injected the fresh poison obtained directly from the living animal intramuscularly into the same species, *Crotalus adamanteus,* without detecting any untoward effects on the snakes. Rattlesnake serum may be somewhat toxic to certain laboratory animals, but not more so than is the serum of other species. It is said that snake venom exhibits little if any toxicity when it is administered by way of the alimentary canal. This has led to the assumption that the bile exerts antitoxic properties on it. Fraser,[3] for example, believed that snake bile had a marked antitoxic action on the venom—an effect exhibited likewise by ox bile in a less marked degree. Welker and Marshall[2] have found that the bile of the rattlesnake is not highly toxic for pigeons, with which they experimented; but they failed to demonstrate the slightest antitoxic power in this secretion.

COAL-MINE FATALITIES

Nearly three quarters of a million men are at present engaged in the work of coal mining in the United States. The hazards of their occupation are familiar to every newspaper reader. Many persons fail to realize, however, that aside from the shocking accidents which come prominently into the public notice there are numerous causes of death which are not so often brought to the attention of the world at large. The loss of life in the coal mines is largely due to accidents underground, nine tenths of all the deaths being located there. Most of these are occasioned by falls of roof; many by mine cars and locomotives, by gas explosions and burning gas, and by coal-dust explosions; in lesser number are the underground fatalities by explosives, electricity and diverse other causes. About one tenth of the deaths occur in connection with the shafts and on the surface. In recently published statistics[1] the Bureau of Mines notes that the fatalities in coal mines in the United States in 1914 were 334 less than during the preceding year, the total fatalities being 2,451 as compared with 2,785 for 1913. The saving of one life every day in the year in any industry deserves more than passing notice. The principal causes of fatal accidents that show a material decrease were coal-dust explosions, 96 per cent., haulage 11 per cent., and falls of roof and pillar coal 10.6 per cent. These lower rates cannot be attributed to any single influence. They may, however, be assigned in part to any of the following agencies: closer and more careful inspection by the state inspector; better enforcement of laws and regulations by the operators; the miner's realization of the dangers attending his daily work, and his efforts to reduce accidents, because of the educational campaign conducted in his behalf; the more general use of safety lamps in doubtful mines; the use of permissible explosives; humidifying dusty mines; first-aid and rescue training in accidents which saves lives that might otherwise be lost; the enactment of industrial accident compensation laws and, last but not least, the spirit of cooperation on the part of all concerned. The growing evidence of the progress being made by modern industrial hygiene, even in fields in which inroads have been difficult, is a gratifying sign of the times.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

GEORGIA

Hospital Incorporated.—A petition has been made to the superior court of Screven County for the incorporation of the Screven County Hospital in Sylvania. The capital stock of the institution is to be $15,000.——The superior court of Tift County has received a petition for the incorporation of the Tift County Hospital at Tifton. The purpose of the corporation is charitable and is not organized for individual pecuniary gain.

Hospitals Dedicated.—The hospitals of the University of Georgia, Augusta, were dedicated June 1. The buildings, three in number, have been erected at an expenditure of about half a million dollars. The dedication exercises, which were held in the building, consisted of the presentation of the hospital by the mayor, the acceptance on behalf of the faculty by Dr. William H. Doughty, Jr., dean of the medical college, and an address by the Hon. J. C. C. Black, who paid an eloquent tribute to the physicians and nurses.

Hookworm Campaign.—The state is conducting a systematic campaign against hookworm, with the assistance of the Rockefeller Foundation. It has been decided to carry on the work in future by county organizations and already a number of counties have begun the work. Free examination and free treatment have been provided in a number of counties, and already a large number of persons have taken advantage of this arrangement. That hookworm is not the only parasitic disease prevalent is shown by the examinations of Dr. Charles R. Henry, Atlanta, and J. R. Webb, an assistant, in Gatoosa County, where among 550 persons examined forty-one were found to have hookworm, forty-two ascaris and thirteen pinworm.

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[1] Noguchi, H.: Snake Venoms, 1909, p. 264.

[2] Welker, W. H., and Marshall, J.: The Toxicity of Rattlesnake Serum and Bile, with a Note on the Effect of Bile on the Toxicity of Venom, Jour. Pharmacol. and Exper. Therap., 1915, vi, 563.

[3] Fraser: Brit. Med. Jour., 1897, ii, 125.

[1] Fay, Albert H.: Coal-Mine Fatalities in the United States, During the Calendar Year 1914, Bureau of Mines, March, 1915.

Personal.—Dr. Harry Rubin, Savannah, has been appointed house physician of the Fresh Air Home, Tybee.——The faculty and adjunct faculty of the Atlanta Medical College, which is to be merged next fall with the Emory University, gave a dinner, June 7, in honor of Dr. William S. Elkin, for many years dean of the college, at which a silver loving cup was presented to Dr. Elkin as a testimonial of his services to the college, the presentation address being made by Dr. Stewart R. Roberts, Atlanta.——Dr. George L. Loden, Atlanta, has been placed in charge of the Atlanta Municipal Tuberculosis Sanatorium, Battle Hill, vice Dr. Louis Hollander, Atlanta.——Dr. John C. White, Atlanta, has been appointed surgeon of the North Georgia Brigade, United Confederate Veterans.——Dr. Walpole C. Brewer, Atlanta, sailed for Europe on the *Canopic*, May 8, for the Mediterranean. Dr. Brewer expects to join the American Red Cross unit in Vienna.

ILLINOIS

New Hospital.—The new Belvidere Public Hospital, although not formally opened, is in operation. The institution is located in the Warren Rowan homestead. The president of the association is Dr. Alden Alguire, and the secretary, Dr. H. Eugene Delavergne.

Scarlet Fever at Joliet.—Under date of June 18 more than 200 cases of scarlet fever had occurred in Joliet with two deaths. The town was under strict quarantine and the schools with their 14,000 children were idle. Churches, theaters and other public places were closed and travel to and from the city restricted.

Personal.—Dr. Louis F. Morse, Cobden, is said to have suffered a slight cerebral hemorrhage, June 4.——Drs. John L. Taylor, Libertyville, and John C. Foley, Waukegan, with their families, started on an automobile trip to the Pacific Coast, June 15.——Friends of Dr. William J. Uppendahl, Peoria, gave a dinner in his honor at the Creve Coeur Club, June 7, over which Dr. George A. Zeller presided as toastmaster. Dr. Uppendahl sailed for Europe with the Chicago unit for service abroad.

Health Day in the Legislature.—The secretary of the State Board of Health has named June 16 as Health Day in the Illinois Legislature. On this day in addition to giving final passage to the vital statistics bill and the bill restoring jurisdiction over old licentiates practicing medicine or midwifery, two measures which will have an important bearing on the abortion evil in this state, the following were sent to the governor for signature: a bill for prevention of blindness from infections at birth; a bill relating to garbage disposal in small cities. A drainage bill and one relating to creation of small parks on behalf of the State Board of Health.

Chicago

Rush Graduation.—At the annual graduating exercises of Rush Medical College, June 16, a class of seventy-five was graduated and Dr. Edward Carl Rosenow delivered an address on "Recent Advances in Medical Research."

Alienists and Neurologists Will Meet Next Month.—The fourth annual meeting of the Alienists and Neurologists of the United States, under the auspices of the Chicago Medical Society, will be held July 12 to 17. About sixty papers are already on the program and in addition, there will be a half-day clinic at the city psychopathic laboratory on the morning of July 14, and on the next day an all-day meeting at the Chicago State Hospital, Dunning.

Medical Society Election.—At the annual meeting of the Chicago Medical Society, June 15, the following officers were elected: Dr. A. Augustus O'Neill, president-elect; Dr. Charles E. Humiston, secretary (reelected); Drs. Charles H. Miller, Charles C. O'Byrne, Douglas A. Payne, Fred L. Glenn and Jacob C. Krafft, councilors-at-large; and Drs. John J. Toeller, Edward J. Devine, Rachelle S. Yarros, Sadie Bay Adair and Louis H. Friedrich, alternate councilors-at-large.

Meeting of Rush Alumni.—The annual faculty banquet of Rush Medical College, to the graduating class and alumni, was given June 16. Addresses were made by Dr. J. B. Herrick and President Judson of the University of Chicago in which the development of Rush College as a part of the university was forecasted. Prof. L. Hektoen, acting for the faculty, presented a watch to Dr. E. C. Rosenow, who leaves the faculty to become a member of the Mayo foundation. Dr. B. McPherson Linnell has been elected president of the Rush Medical College Alumni Association; Dr. C. A. Parker, secretary; Dr. Elmer E. Kenyon, treasurer.

Upholds Milk Ordinance.—The provision of the milk ordinance, passed Aug. 14, 1912, requiring that milk must be cooled immediately after production and kept at a temperature not exceeding 55 F. from the cow to the dealer in Chicago, has been upheld in the suit of the city against the Northwestern Railroad Company. The railroad resisted the requirement that the milk must be kept cool while in transit on the ground that the city of Chicago had no power to regulate its traffic, but that such powers were reserved to the State Utilities Commission. The municipal court, Judge Trude, held that this department was a valid exercise of the police power of the city concerning an important food product.

Against Quackery in Advertising.—June 21, in the meeting of the Associated Advertising Clubs of the World, the chairman of the vigilance committee following the lead of the president, William Woodhead, recommended that henceforth quackery and fraud in advertising be held to "strict accountability"; and further that the associated clubs engage a salaried force of lawyers, detectives, physicians, chemists and other specialists to put suspicious advertising through relentless tests for the elimination of unsound factors. The recommendations were endorsed by the executive committee and the national commission and then unanimously by the convention. Subscriptions of over $2,000 were made on the floor of the convention for carrying out the purposes of the recommendations, and will be increased during the meeting.

INDIANA

Philanthropic Physician Dies.—News has just been received of the death on June 18 of Dr. Robert W. Long, Indianapolis, whose benefactions to the state have amounted to $245,000.

Advance in Sanitary Welfare.—The cities of Gary, Valparaiso and Indiana Harbor have appointed all-time health officers and Peru will soon follow their example.——Michigan City has recently established a municipal laboratory.

Personal.—Dr. Edwin G. Kyte, Seymour, has been commissioned as first lieutenant, M. C., Ind. N. G.——A banquet and reception was given at Evansville, June 11, for Dr. George W. Buckner, Evansville, United States minister at Iberia.

Sanatorium Site Bought.—The board of commissioners of Marion County has purchased a tract of ground of 25 acres near Oaklandon, about twelve miles from Indianapolis, as a site for a tuberculosis sanatorium. The cost of the land is $9,228.

MAINE

Meeting of Maine State Medical Association.—The sixty-third meeting of the Maine Medical Association was held at Poland Springs, June 9 and 10, under the presidency of Dr. Herman L. Bartlett, Norway. Portland was selected as the next place of meeting and the following officers were elected: president, Dr. Erastus E. Holt, Portland; vice presidents, Drs. Herbert B. Mason, Calais, and Harry A. Snow, Milo; and secretary treasurer, Dr. John B. Thompson, Bangor.

MARYLAND

Patients Transferred.—The Supervisors of City Charities transferred on May 21, one hundred patients from the City Detention Hospital at Bay View, Baltimore, to the Springfield State Hospital, Sykesville, thus reducing the number of patients at the Detention Hospital. Later a large number of negro patients will be transferred to the Crownsville State Hospital.

Clinic Dedicated.—The John Hubner Psychopathic Building and the Springfield State Hospital, Sykesville, was formally dedicated June 9. The speakers included Drs. Henry M. Hurd, Hugh H. Young and Lewellys F. Barker, Baltimore; Edward N. Brush, Towson, and Dr. Elmer E. Southard, director of the Boston Psychopathic Hospital. Mr. Hubner was presented by his fellow members of the board with a gold-lined silver loving cup.

Personal.—Dr. Thomas S. Cullen, Baltimore, who was operated on three weeks ago for gallstones at the Johns Hopkins Hospital has recovered and left for a Canadian island to recuperate fully.——Dr. John S. Davis of Baltimore, who was operated on for appendicitis by Dr. Richard H. Follis, Baltimore, at the Union Protestant Infirmary, has left the hospital.——Dr. William S. Thayer, Baltimore, who was operated on for appendicitis in the Johns Hopkins Hospital, June 4, left the hospital a week later and will recuperate in the north.

MASSACHUSETTS

Medico-Legal Society Meeting.—The annual meeting of the Massachusetts Medico-Legal Medical Society was held in Boston, June 8, and the following officers were elected: president, Dr. Frederick H. Baker, Worcester; vice-president, Dr. Oliver H. Howe, Cohasset; corresponding secretary, Dr. Frederick H. Thompson, Fitchburg; recording secretary, Dr. Harry M. Cutts, Brookline; treasurer, Dr. A. Elliot Paine, Brockton.

New Health Division.—The commissioner of health has established a new department to be known as the Division of Hygiene and has appointed Prof. Selskar M. Gunn of the Massachusetts Institute of Technology, as its chief. Among the duties of this department will be the direction of child welfare work, public health nursing, the promotion of traveling exhibits, the arrangement of public lectures and the distribution of health bulletins and pamphlets.

Personal.—Dr. Samuel H. Hurwitz, Boston, has been appointed instructor in research medicine in the George William Hooper Foundation for Medical Research of the University of California.——Alexander Swanson Begg has been reappointed secretary of the graduate school of medicine of Harvard University.——Dr. Richard C. Cabot has been appointed medical advisor to Radcliffe College.——Dr. George S. Graham has been appointed second assistant pathologist and Dr. Edgar M. Medler research assistant in pathology, at the Boston City Hospital.

State Society Meeting.—The Massachusetts Medical Society held its one hundred and thirty-fourth annual meeting in Boston, June 8 and 9, under the presidency of Dr. Charles F. Withington, Boston. The Shadduck lecture was delivered by Dr. Joel E. Goldthwaite, Boston, on "The Anatomic and Mechanistic Theory of Disease"; the annual discourse was delivered by Dr. Everett A. Bates, Springfield, on "Perplexities in Modern Medicine." The annual dinner and business meeting was held at the Copley-Plaza Hotel on June 9, and the following officers were elected: president, Dr. Charles F. Withington, Boston, (reelected); vice-president, Dr. Edmond F. Cody, New Bedford; secretary, Dr. Walter L. Burrage, Boston, (reelected); treasurer, Dr. Edward M. Buckingham, Boston, (reelected); and librarian, Dr. Edwin H. Brigham, Boston.

Changes in Massachusetts State Board of Insanity.—According to the Bulletin of the State Board of Insanity, the following changes occurred in the board and various state institutions under the supervision of the board in May: Col. Stanhope E. Blunt, Springfield, trustee of the Monson State Hospital, resigned. The following have also resigned: Dr. Arthur C. Zuck from the Taunton State Hospital, and Dr. Ernest J. Clifford from the same institution; Dr. Egbert W. Fell, first assistant physician, from the Psychopathic Hospital, and Dr. Edward T. Gibson as junior assistant from the same institution; Dr. George E. McPherson from the Foxborough State Hospital; Dr. William T. Hanson as medical inspector of the State Board of Insanity, May 20, to accept the position of physician in charge of the mental wards of the State Infirmary. Dr. Dora W. Faxon was appointed second assistant physician at the Foxborough State Hospital.

MONTANA

Banquet to Medical Society.—The annual banquet of the Fergus County Medical Association occurred May 15 at Lewiston. The dominant topic of discussion was "Unity in the Profession."

Personal.—Dr. Clarke S. Smith, Butte, has started for England for war service.——Dr. Robert E. Hathaway, Glendive, had a narrow escape from death by drowning, May 27, when the automobile in which he was driving plunged into a flooded creek.——Dr. William D. Madden has succeeded Dr. Thomas E. Murray as health officer of Great Falls.

Spotted Fever.—A case of Rocky Mountain spotted fever was reported May 15, from Carbon County, in the person of a farm hand who had been bitten by ticks while getting out timber in the mountains of Wyoming.——Another case was that of a real estate man of Great Falls, who was said to have contracted the infection while in Idaho.——The secretary of the State Board of Health announced, May 15, that there had been reported eighteen cases in the state. The disease is being observed in localities other than the Bitter Root Valley, to which the disease has been confined almost entirely in previous years. Ticks are said to be more plentiful this year than ever.

NEBRASKA

Will Organize Field Hospital.—Dr. Herbert H. Smith, Fremont, has organized at Fremont, a field hospital for the National Guard of Nebraska.

Correction.—Dr. Irving S. Cutter, Omaha, secretary of the College of Medicine of the University of Nebraska, advises that the appropriation made by the legislature for the new state hospital building to be erected on the campus of the college, was $150,000 and not $50,000, as stated in The Journal of May 22 and May 29.

Personal.—Dr. James D. Case, Dorchester, has been appointed secretary of the State Board of Health and state health inspector, vice Dr. William H. Wilson, Lincoln.——Dr. Hal C. Smith, Franklin, is reported to be seriously ill in a hospital in Lincoln.——Dr. Arthur C. Bunce, Omaha, who suffered amputation of the leg on account of septicemia, has recovered and resumed practice.

NEW HAMPSHIRE

New Officers.—Manchester Medical Society, June 11: president, Dr. Daniel C. Norton; secretary-treasurer, Dr. Melvin P. Badger.

Personal.—Dr. Charles P. Bancroft, Concord, resumed his position as superintendent of the State Hospital, May 17.——Dr. Daniel F. Wells, Exeter, celebrated his seventy-fifth birthday, May 28.

NEW YORK

Diphtheria in Home for Convalescents.—The Caroline Rest in Hartsdale has an outbreak of diphtheria which drove 100 convalescent mothers and their babies back to New York City.

Personal.—Dr. Elmer H. Ormsby, formerly lecturer in anatomy in Albany Medical College, has opened an office in Amsterdam.——Dr. Edmund C. Boddy, Rochester, sailed from New York, June 18, to take service with the Serbian Red Cross.

Memorial Meeting.—The meeting of the Medical Society of the County of Albany, June 10, was devoted to the payment of tribute to the memory of Drs. Samuel Baldwin Ward and George Gustav Lempe, and the adoption of resolutions regarding the death of these two members.

Joint Society Meeting.—A joint meeting of the medical societies of the counties of Allegany, Genesee, Livingston and Wyoming, will be held at Letchworth Park, Portage Falls, July 15. Papers will be read by Drs. Louis F. Bishop and William S. Bainbridge, New York City. Members of all county societies of western New York are invited to be present.

Field Secretary Appointed.—The National Association for the Study and Prevention of Tuberculosis has appointed Mr. Frederick D. Hopkins field secretary, and he will begin work August 1. He is a graduate of Syracuse University and has had experience in publicity and promotion work. He has recently been employed as an inspector by the New York State Board of Charities.

Interesting Number of Health News.—The May number of the *Monthly Bulletin* of the New York State Department of Health is devoted largely to the subject of the diseases of adult life and the increasing mortality at ages over 45. It is said that the statistics show that while the death rate in the periods of early life is decreasing, the rate after 45 is increasing steadily, due almost wholly to the degenerative diseases of the heart, blood vessels and kidneys. It is found that diseases of the heart at present are exceeded only by tuberculosis as a cause of death, and in one or two years the latter was exceeded by the former. Cancer is also on the increase as a cause of death in adult life. Papers by E. L. Fisk of the Life Extension Institute, and on cancer by Curtis E. Lakeman of the American Society for the Control of Cancer, call attention to these facts and emphasize the required measures of prophylaxis, as is also done editorially in the pamphlet and by graphic charts.

New York City

Hospital Physicians Organize.—The assistant attending physicians of the Willard Parker, Riverside and Kingston Avenue hospitals have organized a society for the study of infectious diseases. The first meeting was held at the Willard Parker Hospital May 4.

Hospital Service for Medical Inspectors.—The Municipal Civil Service Commission has agreed to require as a condition of eligibility for the position of medical inspector in the Department of Health twelve months of hospital experience. An examination for inspectors will be held at an early date.

Dog Muzzling Law Upheld.—The Appellate Division of the Supreme Court in March unanimously sustained the validity of the section of the sanitary code which provides for the muzzling of dogs on any public highway or in any park or place in the city of New York. The test case was known as the Knoblauch case.

Hospital Staff House.—The contract has been let for the erection of the medical staff house and nurses home for the Willard Parker Hospital and the building has been started. The building will be 100 by 83 feet, of concrete fire proof construction and will furnish quarters for thirty-five doctors and 115 nurses, each group being provided a separate entrance, halls, dining room, etc., complete. Swimming pools and gymnasiums will be features of the new building.

Wood Alcohol in Toilet Preparations.—Investigation by the inspectors of the New York City Health Department last year showed that more than one-third of the toilet preparations sold in the city contained wood alcohol, which is forbidden by the Sanitary Code. During the past two months more than 300 preparations taken from barber shops and manicuring establishments and supply houses showed only a small proportion containing this deadly poison. Systematic inspections will be continued.

Personal. — Dr. Benjamin Schwartz has been appointed Coroners' Physician to fill the vacancy caused by the resignation of Dr. Otto H. Schultze.——Dr. William S. Magill returned from Russia June 15.——Dr. William B. Giles sailed June 15 on the *Nieuw Amsterdam* for Falmouth en route for northern France where he is to be surgeon in chief of a British contingent supervised by Dr. Foster Kennedy, New York.——Dr. Frederick Tilney, Brooklyn, has been appointed professor of neurology in the College of Physicians and Surgeons in the city of New York, succeeding Dr. Moses Allen Star, who resigned last month after twenty years of service.——Dr. Ward J. MacNeal has been appointed director of laboratories of the New York Postgraduate Medical School and Hospital, succeeding Dr. Jonathan Wright, resigned.——Dr. Morris Fine has been promoted to adjunct professor of pathologic chemistry; Dr. Richard M. Taylor, to adjunct professor of pathology and Paul A. Schule, to lectureship of bacteriology.

PENNSYLVANIA

Laboratory Installed.—Dr. Francis M. B. Schramm, city bacteriologist of Johnstown, has installed a laboratory on the second floor of the city hall.

Hospital Enlarged.—Plans are well advanced for the enlargement of the capacity of Palmerton Hospital, from fifty to eighty beds. Dr. John W. Luther, surgeon in chief of the institution, is also burgess of Palmerton.

Personal.—Dr. James C. Gray, Cressona, is reported to be seriously ill at his home.—Drs. Louis T. Kennedy and Merchant C. Householder, Pottsville, who have been ill in Chicago, are improving and will soon return home.——Dr. Frederick P. Steck, Shamokin, is taking a trip to the Pacific Coast.

Prize Awarded State Health Department.—A grand prize has been awarded by the International Jury of Awards of the Panama-Pacific Exposition to the Pennsylvania State Department of Health, and Dr. Samuel G. Dixon, commissioner of health, who planned the exhibit, has been given honorable mention.

Philadelphia

Personal.—Dr. S. Lewis Ziegler, director of the Department of Health and Charities, has named Edward A. Lees as assistant director of that department.——Dr. S. Lewis Rubinsohn was operated on at Bushil Sanatorium, June 10.——Dr. William H. E. Wehner has been appointed medical director of the Fidelity Mutual Life Insurance Company, succeeding Dr. William H. King, resigned.

Graduation Exercises.—At the ninetieth annual commencement exercises of Jefferson Medical College, held in the Academy of Music, June 5, the valedictory address was delivered by Dr. Victor Clarence Vaughan of the University of Michigan on the subject, "A Doctor's Ideals."——At the annual meeting of the General Alumni Assocation of the Medico-Chirurgical College of Philadelphia, June 3, the principal address was delivered by Dr. Ernest LaPlace. Dr. William McNeary was elected president and Dr. Charles B. Reynolds, secretary-treasurer.

Fourth of July Precautions.—The safe and sane Fourth committee has planned the distribution of 50,000 pieces of literature to householders and to various schools and institutions, calling on parents and guardians to avoid fireworks. The committee will also have posters placed throughout the city calling attention to the danger attached to the use of explosives. The pamphlet will be illustrated showing a child injured by an explosive and will contain the words, "Will This Happen to Your Child?" Other posters will contain the words, "For Safety's Sake be Sane."

Post-Graduate Teaching Association Organized.—The Cooperative Association for Post-Graduate Teaching of Medicine in Philadelphia has recently been organized by more than 100 practitioners of Philadelphia, with Dr. David Riesman as chairman and Dr. George P. Ruller as temporary secretary. The objects of the association are stated to be to investigate and ascertain the resources for postgraduate teaching that exist in Philadelphia; so to arrange the courses offered by each hospital and college as to enable the students to spend each day in solid study or laboratory work, and the establishment of a central office in charge of the permanent secretary, where rosters of courses may be made and where all information will be listed.

OHIO

Medical Society Revived.—The Preble County Medical Society, which has been quiescent for about two years, has been revived and a meeting was held in Eaton, May 26, to elect new officers and recommence active work.

Health Surveys.—A health survey of Springfield has been commenced by Asst. Surg. L. R. Thompson, and Sanitary Engineer R. E. Tarbett, U. S. P. H. S.——Surg. Carroll Fox, U. S. P. H. S., has completed his health survey of Toledo and returned to Washington.

Room Quarantine Adopted.—After a successful test of the method by Health Officer Daniel W. Iford, Toledo, the city health board has adopted the plan of room quarantine in infectious diseases, and an order has been issued giving detailed quarantine instructions under this method of handling infections. This places the afflicted person in charge of a nurse or other member of the family who must be completely isolated from the other members. The latter are allowed to pursue their usual occupations.

Philadelphians Address Academies.—On May 21, Dr. Richard M. Pearce, Jr., professor of research medicine in the University of Pennsylvania, delivered an address before the Academy of Medicine of Cleveland, on "The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice." After the lecture a smoker was given at the University Club by the heads of the department of medical research and of the various laboratories of the School of Medicine of Western Reserve University.——Dr. John A. Kolmer, director of the Research Laboratory of Pathology of the University of Pennsylvania, was the guest of the Academy of Medicine of Toledo and Lucas County, May 14, and delivered an address on "The Mechanism and Diagnostic Value of Anaphylactic Skin Reaction."

Personal.—Dr. Thomas G. Farr, the oldest practitioner of South Charleston, was the guest of honor at a banquet before the Clark County Medical Society in Springfield, June 9. After the dinner Dr. Farr was presented by the Society with a leather covered easy chair.——Dr. Harry E. Welch, Youngstown, was elected a vice president, and Dr. Louis H. Frechtling, Hamilton, a trustee of the Ohio Society for the Prevention of Tuberculosis at its meeting in Columbus, June 7.——Dr. Chelsea A. Coleman, Dayton, has filed suit in the common pleas court for $5,000 damages on account of injuries to his legs and damages to his automobile, said to have been suffered May 4, last.——Dr. James H. Lowe, Piqua, has been elected president of the Miami Valley Health Officers Association.——Dr. Louis L. Syman, Springfield, who was operated on for appendicitis at the Springfield City Hospital, June 3, is reported to be doing well.——Dr. Reginald L. Cameron, Cleveland, has been appointed chief surgeon of the Republic Rubber Company and also placed in charge of the welfare department.——Drs. Lucian G. Locke and Charles W. Wendelken, Portsmouth, have been elected trustees of the Antituberculosis Society of Scioto County.

Cincinnati

Portrait Presented.—A portrait of Dr. Joseph Aub, prominent as an eye, ear, nose and throat specialist of Cincinnati, who died in 1888, was hung in the reception room of the

Cincinnati General Hospital, May 28. The painting was presented by the widow of the physician.

New Home for Academy.—Plans for the erection of a new home for the Cincinnati Academy of Medicine to cost $250,000 were discussed at a meeting, June 7. A building committee of five was appointed and it is planned to erect a building on Seventh, Eighth or Ninth streets with one floor for stores, the second, third and fourth floors for offices of physicians and dentists and the upper floors for meeting rooms, library, lecture rooms and laboratories for the Academy of Medicine.

Personal.—Dr. John H. Perry, assistant superintendent of Longview Hospital, has resigned his position to accept a similar post at the Hospital for Criminal Insane at Lima, Ohio.——Dr. Horace F. Tangeman has been appointed otolaryngologist to the Branch Tuberculosis Hospital.——Dr. John A. Caldwell, Jr., has been appointed junior surgeon and Dr. Edgar C. Steinharter, junior gynecologist to the Cincinnati Hospital.——Dr. Albert H. Freiberg has had conferred on him the honorary degree of LL.D. by Cedarville College, Cedarville, Ohio, on account of his distinguished services to humanity in the field of orthopedic surgery.

Emery Gift to the University.—Mrs. Mary M. Emery has made a provisional gift of $250,000 for the construction of a new building for the Ohio-Miami Medical College of the University of Cincinnati, conditional on the raising of a like sum to equip the new building. Mrs. Emery's munificent gift is in gratitude to the profession of medicine and with a desire to further its powers of alleviating the ills of humanity. The new building will be located immediately adjoining the new Cincinnati General Hospital on the north and close to the pathologic building of that institution. The new medical school will consist of a central four-story building and two three-story wings conforming in general architectural plan to the Cincinnati General Hospital. Active work is commenced on the raising of the additional $250,000, on the securing of which, Mrs. Emery's offer becomes available. Mr. Harry M. Levy has already given $50,000 toward this fund.

OKLAHOMA

Health Department Moved to Guthrie.—Permission having been granted by the governor, Dr. John W. Duke, Guthrie, state health commissioner, has moved the office of the State Health Department to Guthrie.

New State Board of Medical Examiners.—Governor Williams has appointed the following board of medical examiners: Dr. Ralph V. Smith, Tulsa, secretary; and Drs. Le Roy Long, McAlester; B. L. Denison, Garvin; Ernest B. Dunlap, Lawton; William T. Ray, Gould; Melvin Gray, Mountain View; and William L. Bonnell, Chickasha.

State Association Election.—At the annual meeting of the Oklahoma State Medical Association held in Bartlesville, May 11 to 13, under the presidency of Dr. John W. Riley, Oklahoma City, the following officers were elected: president, Dr. J. Hutchings White, Muskogee; vice presidents, Drs. Walter Penquite, Chickasha; John P. Sudderth, Nowata, and W. Albert Cook, Tulsa; and delegate to the American Medical Association, Dr. John W. Riley, Oklahoma City. Oklahoma City was selected as the next place of meeting.

Personal.—Dr. David A. Myers, Lawton, is recovering from injuries received when his automobile ran over him while he was cranking it when in gear.——Dr. Henry Cone, Maud, was acquitted on the plea of self-defense at his trial recently for shooting and killing a tenant on his farm. ——Dr. Leander M. Overton, Fitzhugh, was struck by an automobile and sustained a fracture of the skull, clavicle and a Colles fracture.——Dr. Clarence C. Shaw, Tishomingo, has been appointed state prison physician, succeeding Dr. John W. Echols, McAlester.——Dr. Joel R. Holliday, Oklahoma, has been appointed a member of the Board on Sanity, succeeding Dr. Ross D. Long, Oklahoma, who has been given an indefinite leave of absence by county commissioners, and has sailed for Europe.

OREGON

Personal.—Dr. Richard A. Nunn, Portland, sailed for Europe, May 8, and expects to be placed on duty in one of the English hospitals.——Dr. Charles J. Smith, Portland, was elected chairman of the State Board of Higher Curricula at its meeting for organization.——Dr. Shelly Saurman, director of the bacteriologic laboratory of the State Board of Health, has resigned and will locate in Burns.

College Adopts Higher Requirements.—The announcement of the University of Oregon, department of medicine, just received states that after Jan. 1, 1916, two years of collegiate work, including courses in physics, chemistry, biology and French or German, will be required for admission. There are now forty-three colleges and nine state licensing boards which have adopted this higher requirement.

Physicians Win Suit.—The suit brought by Iris W. T. Oliver against Drs. James P. and Brice R. Wallace, Albany, for alleged malpractice in setting a fracture of the shoulder, in which $25,000 damages were asked, was decided May 4, in favor of the physicians. The testimony showed that the treatment of the case was thoroughly scientific and in accordance with the latest and most approved method.

VIRGINIA

Hospital Notes.—The committee on plans for the new Alexandria Hospital has made a contract with an architect of Washington, for the preparation of plans for the building. ——Clergymen of Norfolk have united in a campaign to raise $25,000 to make up the deficit of the Protestant Hospital, Norfolk.

Health Association Meeting.—At the annual meeting of the Virginia Public Health Association, held in Lexington, May 10, to 12, the following officers were elected: president, Dr. John W. H. Pollard, of Washington and Lee University, Lexington; vice presidents, Drs. C. Curtis Hudson, Danville, and Thomas J. Pretlow, Newport News; secretary-treasurer, Dr. W. B. Brownley Foster, Roanoke, and assistant secretary-treasurer, Dr. Roy K. Flannagan, Richmond.

Alumni Election.—At the annual meeting of the Alumni Association of the Medical College of Virginia, Richmond, June 1, the following officers were elected: president, Dr. Lewis C. Bosher, Richmond; vice presidents, Drs. Achilles L. Tynes, Staunton; Thomas S. Hening, Jefferson; William K. McCoy, Gum Spring, and Richard C. Waldon; secretary, Nathaniel T. Ennett, Richmond; assistant secretary, Dr. James H. Smith, Richmond, and treasurer, Dr. Frank H. Beadles, Richmond.

Personal.—Dr. Allen W. Freeman, Richmond, assistant state health commissioner, has resigned to become epidemiologist in the United States Public Health Service.——Dr. Ennion G. Williams, state health commissioner of Richmond, was elected president of the Conference of State and Provincial Boards of Health of North America, at its meeting in Washington, recently.——Dr. William L. Dunn, Abingdon, has been elected surgeon of the William Jones Camp, United Confederate Veterans.——Dr. Harry T. Marshall, Charlottesville, of the University of Virginia, has been appointed a member of the state tuberculosis commission. This commission is to serve without pay and is to consider the question of tuberculosis in all its phases and to report to the next general assembly a comprehensive plan for the control of the disease.

WISCONSIN

Physicians' Building in Green Bay.—Contracts have been awarded for the construction of the Bellin-Buchanan Building, Green Bay. The contract calls for a building 66 by 105 feet and six stories in height, which is to be devoted especially to the use of physicians and dentists.

Hospital Notes.—Dr. Christian U. Senn, Ripon, has associated with him Dr. U. Senn, Milwaukee, and will establish a hospital in the near future. The building at the corner of Ransom and Blossom streets is to be remodeled for this purpose.——A permit has been issued for the construction of an addition to the Milwaukee Hospital for Contagious Diseases, which is to be erected at a cost of $90,000.

Sanatorium Notes.—Ground for a new tuberculosis sanatorium for Kenosha County was broken, May 19, and it is hoped that the construction of the building will be carried on without delay.——The trustees of the Milwaukee County Tuberculosis Sanatorium have asked the people of Milwaukee to suggest a name for the new institution. Suggestions are to be sent to Dr. Hoyt E. Dearholt, Milwaukee.

Personal.—Dr. Urban J. Durner, Milwaukee, has received an appointment as house surgeon in the Eye, Ear, Nose and Throat Infirmary of Middlesex Hospital, London.——Dr. Gustav Windersheim has been reappointed chairman of the Board of Health of Kenosha.——Dr. Frank I. Drake, head physician at the State Prison, Waupun, has succeeded Dr.

Charles Gorst, as superintendent of the Mendota State Hospital.——Dr. Norman Hoffman has been reappointed superintendent of the State Open Air Sanatorium for Tuberculosis, Wales.——Dr. Alfonse F. Kalkhoff, Milwaukee, fell on a sidewalk, recently, fracturing his left arm.——Dr. Gustavus I. Hogue, Milwaukee, has been elected president of the Northwestern Alumni Association of the Southwestern District of Wisconsin.

WYOMING

Personal.—Dr. Henry W. Greist, Casper, is suffering from complete paralysis of the left facial nerve, probably due to exposure.

Tick Fever.—Five fatal cases of Rocky Mountain spotted fever have occurred in Montana this year, to June 4, and there has been a great increase in the number of cases. Ticks are unusually plentiful on account, it is believed, of the extraordinary amount of rain throughout the spring months.

New Quarantine Order.—A new quarantine order, superseding that of April 1, has been issued by the governor. By this order it is permitted to ship into Wyoming, cattle, hogs, sheep and horses from the states of Washington, Oregon, California, Idaho, Nevada, Arizona, Utah, Montana, Colorado, New Mexico and Texas, if accompanied by a health certificate, and from North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Louisiana, Arkansas, Missouri, Iowa and western Minnesota, on special permit issued by the state veterinarian.

CANADA

Anatomy Professorship Endowed.—Dalhousie University, Halifax, N. S., has received a gift of $30,000 toward the endowment of a chair of anatomy. An announcement is made that this sum will be doubled in the near future.

Sanitary Corps Organized.—Dr. Thomas A. Starkey, Montreal, has organized a sanitary corps for overseas service, of which he will be in command. It will be composed of students of McGill University and will number twenty-eight men. They expect to leave for England shortly.

Ambulance Donated.—The telephone girls of Toronto have presented a motor ambulance valued at $1,800, fully equipped and ready for service to the Canadian Red Cross Society. ——The Hon. Charles Dalton of Charlottetown, P. E. I., has offered to provide a motor ambulance for Red Cross work at the front.

More Surgeons Needed.—The British War Office is asking for more doctors. Candidates must be British subjects, under 40 years of age and graduates of some Canadian medical college. They must pass the regular military service examinations, be members of the Army Medical Corps and vouched for by the authorities of that corps.

Ontario's Offer Accepted.—The War Office has accepted the offer of the Ontario Government to provide a hospital of 1,040 beds in England for wounded soldiers. There have been many applications for positions on this hospital. The following names have been mentioned as likely to receive commissions: Drs. Rowland B. Orr, Herbert A. Bruce, Herbert J. Hamilton and Harry B. Anderson, all of Toronto.

Personal.—Dr. Thomas P. Bradley, Sarnia, Ont., has volunteered for special service overseas with the Royal Army Medical Corps.——Drs. F. W. Manning and Charles R. Totton, Windsor, have been accepted by the Canadian Government for service with the Army Medical Corps in France.——Dr. Irving Heward Cameron, professor of surgery in the University of Toronto, has left for England to accept the position of honorary visiting surgeon on the staff of King George Hospital, an institution with 1,600 beds, recently founded. Professor Cameron will be associated with Sir Frederick Treves, Sir Arbuthnot Lane and other distinguished English surgeons.——Dr. Michel Lefevre, Maisonneuve, Que., has left on an extended trip to California.——Dr. E. Vincent Sullivan, St. Stephen, N. B., has left for Montreal to sail at an early date with the Army Medical Corps for Europe.——Dr. Harris C. Mersereau, Montreal, is going to the front in command of a field ambulance.——Dr. Alfred B. Atherton, Fredericton, N. B., has returned from an extensive trip to California.——Dr. Lorne D. MacIntosh, Hartland, N. B., has sailed for England to act as surgeon in the Imperial Army Medical Corps.——The Hon. Dr. Henri S. Beland, St. Joseph, Que., one time member of the Laurier Government in Canada, has been interned from Belgium where he was when the war broke out. He is now in Germany as a prisoner of war. Dr. Beland had been attending wounded Belgian soldiers in the castle of Capellan.——Dr. James E. M. Carnwarth, Riverside, Hopewell Hill, N. B., had an unusual experience on a recent professional trip returning from a night visit. His motor car ran into two moose lying on the road.——Dr. Harry B. Lawson, Rolling Dam Station, N. B., has departed for Montreal to sail for the war.——Dr. Alan H. N. Kennedy, Macleod, Alta., has been appointed medical referee for the province of Alberta under the Workmen's Compensation Act.

GENERAL

Red Cross Seals.—The American National Red Cross has placed an order for 125,000,000 Red Cross seals for 1915. New regulations in regard to procuring and selling these seals will soon be published in the Bulletin of the Red Cross.

American Surgeons Meet in Minnesota.—At the annual meeting of the American Surgical Association held in Rochester, Minn., June 9 to 11, the following officers were elected: president, Dr. Robert G. LeConte, Philadelphia; vice presidents, Drs. Charles L. Gibson, New York City, and Archibald MacLaren, St. Paul; secretary, Dr. John H. Gibbon, Philadelphia; recorder, Dr. John F. Binnie, Kansas City, Mo.; and treasurer, Dr. Charles H. Peck, New York City. The 1916 meeting will be held in Washington.

Throat, Nose and Ear Specialists Hold Meeting.—At the twenty-first annual meeting of the American Laryngological, Rhinological and Otological Society, held in Chicago, June 16, the following officers were elected: president, Dr. Seth MacCuen Smith, Philadelphia; vice presidents, Drs. William B. Chamberlain, Cleveland; John B. Rae, New York City; Robert C. Lynch, New Orleans, and Thomas E. Carmody, Denver; secretary, Dr. Thomas J. Harris, New York; and treasurer, Dr. Ewing W. Day, Pittsburgh. The gold medal of the society offered for research work was awarded to Dr. G. H. Cox, New York City.

Congress Postponed.—Dr. J. Riddle Goffe, New York City, president of the Seventh International Congress of Obstetrics and Gynecology, announces that the meeting scheduled for September of this year will be postponed until September, 1917. This decision was reached at a meeting of the American Executive Council of the Congress recently held in St. Louis. It was decided that the expenses thus far incurred to the congress should be deducted from the subscriptions of the members of the American Executive Council of America and that the subscriptions of all other members of the organization committee should be returned to them until money is again needed in the preparation for the congress.

New Regulation Under the Harrison Narcotic Law.—The following bulletin has just been issued by the Commissioner of Internal Revenue, interpreting Regulations No. 35, Supplement No. 2, of the Harrison Narcotic Law, requiring a separate application for registry and payment of special tax if the applicant has more than one place of business, with no exception.

> Art. 1. The second paragraph of this article is hereby amended, effective on and after this date, to read as follows:
>
> If the applicant has more than one place of business, or if, in any case, the applicant is engaged in more than one profession or business where any of the drugs above described are made, stored, or dispensed, a separate application for registry must be made, and a special tax must be paid, in each such case.

Bequests and Donations.—The following bequests and donations have recently been announced:

For the establishment of a hospital in Bluffton, Ind., $1,000, by the will of Herman Wicking, Ridgewood, N. J.

Chicago Lying-In Hospital, $100,000, from Mrs. Julius Rosenthal.

Maine General Hospital and Maine Eye and Ear Infirmary, Portland, each $50,000, contingent bequests by the will of John E. Martin.

St. Louis Skin and Cancer Hospital, the income of the estate of George D. Barnard, appraised at $2,000,000.

Montefiori Home and Mount Sinai Hospital, New York City, each $10,000; United Hebrew Charities, Guild for Crippled Children and New York Skin and Cancer Hospital, each $2,500, by the will of Mrs. Amelia Lavenburg.

St. John's Hospital, Brooklyn, N. Y., $2,000, by the will of Mrs. Julia E. Beals.

Episcopal Hospital, Philadelphia, $5,000, for the endowment of a free bed to be known as the William H. Richardson free bed, by the will of Alice H. Richardson.

St. Joseph's Hospital, Philadelphia, $5,000, for the endowment of a free bed in memory of the late Rear Admiral Jackson McElmell, U. S. N.; St. Agnes' Hospital, Philadelphia, $5,000, to endow a free bed in the name of the testator by the will of Thomas A. McElmell.

West Philadelphia Hospital for Women, donations of $5,000 each, from Miss Mary Burnham and Miss Elizabeth Shippens, and $1,000 by the will of Mrs. Theodore Lewis, all to be devoted to the Maternity Building fund.

Presbyterian Hospital, New York City, $30,000, by the will of Mrs. Evelina A. Meserole.

Red Cross Work in Mexico.—Two carloads of food sent by the American Red Cross to Monterey, Mexico, have been received and greatly appreciated by the starving people. More than 20,000 have already been fed.——Corn for 7,000 was supplied at the American Hospital at Monterey, on June 5.——Corn, beans and rice are the most urgent needs.——General C. A. Duval, general manager of the American Red Cross, has been conferring with Major-General Frederick Funston, regarding the direction of the Mexican relief campaign. He also visited the various border points to expedite and safeguard the handling of relief stores.——Consular agents throughout Mexico will cooperate with the Red Cross and the military authorities on the border in the forwarding of supplies.——Two additional cars of corn have been sent to Monterey.——The American Red Cross shipped on June 10, twenty-five cases of drugs and hospital supplies to the United States consul at Vera Cruz, to be forwarded to the Spanish, American and French hospitals in Mexico City.——Famine conditions are said to prevail at Vera Cruz and in the surrounding country.——At Jalapa conditions are said to be appalling. More than 2,500 women stood in line for the distribution of rations.——Acapulco, on the west coast, is practically without food supplies and the inhabitants are reported to be starving.——Shortage in all cereals is reported all over Mexico and in Mexico City, thousands are said to be in danger of perishing from hunger and epidemic diseases.——Smallpox and typhus fever are reported to prevail in the city of Mexico.

The Campaign Against Cancer.—The American Society for the Control of Cancer urges every state medical society to take an active part in arranging meetings for the spread of the latest knowledge among members and the public of malignant disease. The Pennsylvania State Medical Society has suggested that medical journals help in the propaganda and many of them will devote their July issues to the cancer problem. The American Society has recently restated its relation to the cancer campaign and to the various other organizations working along the same line. The national society has endeavored to work in harmony with other agencies and so to arrange its work and organization as not to duplicate efforts in cancer prevention. It organizes no local societies where existing agencies cover the field, and will not attempt to enter the field of biologic research already so well covered under the auspices of the leading universities. The society expects, however, to expand that feature of its work relating to the collection and collation of statistical data, which need to be improved both as regards their collection and publication. At the suggestion of the society the United States Census Bureau immediately began the preparation of a report on the cancer mortality in the United States registration area in 1914. In this report the deaths will be stated in detail under some thirty titles of organs and parts of the body affected, rather than, as hitherto, under the six general groups of the international list. This will conform to the plan of the Imperial Cancer Research Fund, making the data available in the same form as those of England and Wales. The bureau will also attempt to make a distinction between returns based on certain and on doubtful diagnoses, and to establish this is making inquiry of physicians reporting cancer cases as to whether the diagnosis was based on clinical findings alone or was established by surgical operation, microscopic examination or necropsy. Much of this work, it is believed, should be done in the first instance by registration officers or the boards of health of the various states where the original certificates of death are filed. The society urges on the various state officials the need of doing this work in order to insure the permanence of the improvement in the statistical study of cancer which has been inaugurated by the census bureau. The society is further interested in and will give special attention to special statistical studies of the geographic, racial and occupational distribution of cancer, and endeavor to collate on a uniform plan the records of the surgical treatment of the disease in the leading hospitals so that an authoritative answer may be available to inquiries as to what percentage of success is to be expected in the treatment of cancer in each of its phases and stages.

WAR NOTES

Swedish Hospital at Paris.—The Swedish colony in Paris has established a hospital within the premises of the Swedish church in the rue Guyot. The *British Medical Journal* states that the hospital makes a specialty of Swedish massage by experts. Dr. Périer is in charge of the hospital.

Typhus Conquered in Serbia.—Advices to the *British Medical Journal* of June 5 confirm the news that the epidemic of typhus in Serbia is now virtually extinct. On April 5, there were 8,198 cases of typhus at Nish and by April 18, only 948. The number of cases of relapsing fever had dropped from 7,693 to 4,861.

Philadelphia Unit Leaves for War.—The University of Pennsylvania expedition composed of doctors and nurses led by Dr. J. William White, sailed from New York, June 12, on the *St. Louis* for work in the American Ambulance, Paris. The medical members of the party are Drs. James P. Hutchinson, chief surgeon; Daniel J. McCarthy, neurologist; Drs. Edmund B. Piper, Arthur E. Billings and Peter M. Keating, assistant surgeons; Dr. Samuel Goldschmidt, bacteriologist; Drs. Thomas Galler and D. M. Davis, assistants, and four nurses.

Armenian Red Cross Fund—Armenia joins Russia in the eastern part of Asia Minor, and 10,000 Armenian volunteers are now fighting in the Russian army. This number will soon be doubled, but they have no medical men except a few medical students from Kieff. Armenians all over the world have equipped and maintain the soldiers, but there are no Red Cross appliances of any kind. Thousands of refugees have crossed the border into Turkestan, 12,000 are known to be at one point. An appeal for a Red Cross and Refugee fund for the Armenians is published in the *Lancet*; the treasurer is Mr. H. A. Godson Bohn, 17 Holland Villas Road, Kensington, England.

New Motion Picture on Tuberculosis.—It is announced in the Bulletin of the National Association for the Study and Prevention of Tuberculosis that after several months of work the association, in cooperation with the Universal Film Co., has produced a new four-reel film called the "White Terror." It is said to be a production with "dramatic punch," carrying several lessons concerning the use of fake cures for consumption, the danger of bad housing and working conditions and the evils of political corruption as it relates to public health. As this film will be distributed in the regular service of the film company, which supplies half the theaters in the United States, it will be seen by a large number of persons.

The Touring Club and the War.—The efforts in recent years of the organized automobilists of western Europe to improve the roads have proved of signal service in the military operations in the last few months. The headquarters of the Touring Club of France are in the magnificent premises where was kept the safe supposed to contain the fabulous fortune of the Humberts. The members of the club are mostly fighting at the front, and the building has been devoted to the preparation of packets of gifts to be sent to the men on the firing line. Souvenir postcards, medals and little flags were sold to add to the funds for this purpose, all commemorating the big gun, "the seventy-fiver." They were sold by the thousands of members of the Touring Club for a few pennies each, and the *Lancet* states that special arrangements had to be made with the banks to deal with the huge amounts of small coins thus turned into the treasury of the club. Far over a million dollars had been realized by the first of June, and the reports are not all in.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending June 19, 1915, lists the following contributions:

Dr. L. O. Tarleton, 1st Lieut. U. S. A., Manila, P. I.		$ 5.00
Norwich Medical Association, Norwich, Conn.		25.00
Westmoreland County Medical Society, Mount Pleasant, Pa.		25.00
Elmira Academy of Medicine, Elmira, N. Y.		50.00
Dr. Angus McLean, Detroit, Mich.		30.00
Receipts for the week ending June 19		$ 135.00
Previously reported receipts		7,312.00
Total receipts		$7,447.00
Previously reported disbursements:		
1,625 standard boxes of food at $2.20	$3,575.00	
1,274 standard boxes of food at 2.30	2,930.20	
353 standard boxes of food at 2.28	804.84	
Total disbursements		7,310.04
Balance		$ 136.96

F. F. Simpson, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Repair after Wounds of the Jaws.—The *Lancet* reproduces an account of a visit to the Strassburg hospital where a staff of specialists is striving to reduce to the minimum the ravages caused by wounds of the mouth and face. It is said to be the first that has ever been organized in any war for the treatment of wounds of the face and jaw. "The staff numbers fifty-five, and all the work (including the cooking), which is done by the wives and daughters of the professors, is performed without fee. The hospital itself is divided into two sections. In the first a dozen dentists examine the teeth of the soldiers, extract, and make plates. This work is carried out at the cost of the military authorities, who adopt the very reasonable point of view that a soldier with defective teeth cannot be thoroughly efficient. The remaining section of the hospital itself comprises two subdivisions—the operating theater and the department in which are made the prosthetic molds destined to replace the bones or sections of bone sacrificed in the operation, and the surgical work is entirely done by dentists, most of whom have taken their medical degree. The wounded are photographed and roentgenographed on their arrival and photographed before departure, and these photographs and roentgenograms will constitute a collection of the highest scientific interest." At the moment of the visit more than 200 soldiers were undergoing treatment there, and the results already obtained are said to be almost marvelous.

BERLIN LETTER

Berlin, May 26, 1915.

Visit to Camp of Prisoners of War

A party of 400 Berlin physicians, May 25, visited the camp of war prisoners installed near Berlin on the large parade ground at Döberitz. About 9,500 prisoners are quartered there, housed in new wooden barracks, partitioned off. The camp is laid out in blocks, and the prisoners are quartered by nationalities.

Although the requirements as to food differ according to the nationality, the profession and other individual peculiarities, yet nowhere were visible signs of insufficient nourishment. Not a few of the captives appeared excellently well nourished. As is easily understood, the living rooms and especially the sleeping quarters are primitive. The governments now have to care for 1,400,000 prisoners in the various concentration camps. The prisoners keep in the open air almost all day long, and the open windows and doors provide for ample ventilation. Everywhere we found good air in the barracks.

All the prisoners are obliged to keep themselves clean. Each one is compelled to take a shower-bath every day, a simple but well-working shower-bath arrangement being installed in each barracks. Every three weeks the clothing of each of the prisoners is sterilized with hot air. There is a huge central establishment for washing the body linen, and in each block there is a separate wash-house where the captives can clean their clothes and linen.

Each captive receives daily 300 gm. of bread, with coffee, tea or soup in the morning; at noon, one-fourth liter soup, with vegetables, potatoes and 100 gm. meat; for supper, soup, with sometimes tea or chocolate. There is a cook-room in each block, where the meals are prepared in four large kettles. Near the cook-room there is a bar or canteen where articles of food and clothing and sewing materials are for sale at fixed, very low prices. Most of the captives are able to supplement the regular ration served out to them as they receive donations forwarded to them from their homes. A special pavilion is devoted to this package service, eight officials receiving and carefully examining the parcels and handing them over to the prisoners.

There are four latrines to each block. The cement floors of the closets are flushed with a perpetual flow of water sweeping the excreta at once into the sewer, so that there are no disagreeable odors in or around the latrines.

ARRANGEMENTS FOR THE SICK

Three pavilions in the camp shelter the sick, one for internal medicine, one for surgery and one for contagious diseases. Besides these there is an isolation pavilion, fifteen minutes' walk from the camp. The health of the Döberitz camp is very good; there were only nine inmates in the medical ward and ten in the surgical, none very sick, and the contagious pavilion was empty. In the isolation pavilion there were a few tuberculous French prisoners. Two Russian and two English army surgeons have charge of the sanitary and hygienic care of the prisoners.

HOW THE PRISONERS PASS THE TIME

At present there are only 3,500 captives in the camp, as 6,000 are being utilized in farm work in the neighborhood. The captives still in camp are also occupied in farm or road work or called on for service inside the camp. In special cases more freedom is allowed, as, for instance, in one small building where several artists are at work, painting portraits and other pictures, paints having been supplied them by gifts from friends at home. A large tent has been set up for a Russian theater, the stage setting artistically adorned by some of the Russian prisoners. There is a similar institution also for the English, and we had the peculiar pleasure of hearing an orchestra of English prisoners render the overture to Don Giovanni. The orchestra is only partly composed of professional musicians.

PARIS LETTER

Paris, June 3, 1915.

The War

A NEW IMPROVEMENT IN THE TRANSPORTATION OF THE WOUNDED

The transportation of the wounded, which was the weakest side of the organization of the medical service at the beginning of the war, has since then been considerably improved. The removal of the wounded has been so far accelerated that at noon, April 29, soldiers who had been wounded at the Yser on the 28th were received at the station of La Chapelle, which is the distributing point for the entrenched camp of Paris. This progress is due in part to the greater number of medical service trains. There are at present more than 200 of these. It is also partly due to a change in method. For many months wounded men were transported like ordinary passengers, being fed and their wound dressed at the station infirmaries. Now there are three kinds of medical service trains: (1) trains called permanent, which are composed of special coaches for the exclusive use of the wounded; (2) trains called semipermanent, which are composed either of baggage cars arranged for reclining wounded men or of passenger cars with a side aisle (these coaches are arranged to receive both seated and reclining wounded men); (3) trains called improvised, made up of coaches or of baggage cars fitted up with apparatus for suspending litters and intended to receive wounded men who are unable to sit up (these last trains are utilized only for intensive evacuations).

To make of each train the hospital on wheels demanded by the medical service, however, certain indispensable features must be provided. The departmental instructions prescribe only the addition to the train of a restaurant car, which is to serve as an office, a pharmacy, a dressing room, a diet kitchen and a dining room for the staff. This solution, which answered as a makeshift during a period of transition, is really unsatisfactory. It is impossible to adapt to such various uses a single restaurant car. Moreover, each one of these cars weighs 37 tons. To carry one of them three coaches of wounded men must be omitted. Something better, therefore, is required. Commandant Carcenat, commissary officer of one of our stations, has endeavored to solve the problem. He has devised the transformation of an ordinary baggage car 9.5 or 10 meters (31 or 33 feet) long into either a dining car or a hospital car. The dining car comprises the kitchen, with stove, coffee urn, cupboard and pantry, and a dining room for sixteen men. The cost of fitting it up is about 800 francs ($160). The hospital car comprises three rooms: (1) a diet kitchen with a very small water heater surrounded by asbestos, capable of boiling 200 liters of water in an hour (this permits the preparation of hot drinks and of aseptic dressings at any hour of the day or night); (2) the pharmacy, containing indispensable remedies such as morphin and caffein, ampules of cocain and ether and antitetanic and antidiphtheric serums; (3) a very simple dressing room, but arranged according to all hygienic rules with an operating table composed of two tripods connected by a cross bar on which the litter is placed. Every soiled object is thrown into the furnace of the locomotive at the first stop. The cost of fitting up a baggage car as a hospital is about 1,100 francs ($220).

To increase the number of these moving hospitals as much as is desirable outside assistance is permitted. The city of Paris has just fitted up, at its own expense, seven baggage cars as kitchen and dining cars. The city of Lyons has done the same. Societies and private persons can easily collect the amount necessary for such refittings.

RESULTS OBTAINED AT THE SCHOOL FOR CRIPPLES AT LYONS

I mentioned in my previous letters (The Journal, March 13, 1915, p. 923, and May 15, 1915, p. 1671) various endeavors which have been made to reeducate cripples for vocations. M. Edouard Herriot, mayor of the city of Lyons and senator of the department of the Rhone, has just reported the results already obtained in the first Ecole professionelle de blessés at Lyons. The school has at present ninety-three pupils, eighty-five resident and eight nonresident. It gives instruction in the following subjects: (1) bookkeeping, stenography, typewriting, etc.; (2) shoemaking; (3) sewing; (4) carpentry and joinery, and (5) bookbinding. It is also proposed to lay out extensive grounds for the instruction of some of the war cripples in horticulture.

All the pupils employed in manual labor are obliged to give their evenings to courses of general instruction graded according to the previous education of the pupils.

The purpose of the school is to produce not merely passable workmen but model workmen, and to combat the tendency of crippled soldiers to seek for wretched little government jobs. In order to keep the pensioners as long as may be necessary to teach them the complete technic of their trade and permit them to become teachers, employers or foremen, they are given substantial inducements; that is, they are given free board, no claim being made on the allowance made them by the government, and at the same time they are permitted to receive the returns from their daily work.

IMMEDIATE TREATMENT OF WOUNDS OF WAR BY CONCENTRATED SOLUTIONS OF SEA SALT

At a recent session of the Société de chirurgie de Paris, Dr. Abadie of Oran reported good results obtained by treating wounds with concentrated solutions of sea salt which, being hypertonic, produced an exosmosis, thus bathing the tissues while promoting diapedesis. These solutions, unlike antiseptics, are not toxic for the cellular elements. After the wounds have been freely laid open and carefully cleansed, removing the dead and suspected tissues, Abadie irrigates freely with a 0.7 per cent. solution of sea salt and then packs the wound with gauze wet in the mother solution of from 14 to 28 per cent. A thick dressing is necessary because of the abundant serous effusion. This mode of treatment gives red and healthy wounds, in which infections are aborted at the start. Old wounds are deodorized and the general condition is not comparable to that ordinarily presented by severe wounds.

Dr. Morestin, surgeon of the hospitals of Paris and agrégé, has also made much use of salt but not in precisely the same conditions as those reported by Abadie. He has used it especially in the treatment of old wounds and particularly of varicose ulcers. The salt rapidly modifies wounds which are atonic or covered with exuberant granulated tissue. It gives them a healthy appearance and hastens repair. This treatment, however, has the disadvantage of being painful.

THE DANGER OF PUTTING TYPHOID AND PARATYPHOID PATIENTS IN THE SAME WARD

At a recent session of the Société médicale des hôpitaux de Paris, Drs. Jeanselme and E. Agasse-Lafont reported a case of successive infection first by the paratyphoid B bacillus and then by the Eberth bacillus, which raises an important problem of prophylaxis. A soldier brought back from the front who had been infected with paratyphoid B was placed in an isolation ward in which there were both typhoid and paratyphoid patients. The case first ran a normal course and then seemed to have a relapse, which was followed by a second relapse. The possibility was then considered of the complication being not a relapse but a new infection. Serodiagnosis with the Eberth bacillus, which had been negative during the first attack, was now found distinctly positive.

This fact seems to indicate that typhoid and paratyphoid patients should be separated, the two groups of patients being dangerous to each other, since the two diseases are absolutely distinct and neither immunizes against the other, as has been proved by vaccination. Prudence is all the more desirable since cases of paratyphoid are now extremely frequent, being even more numerous in certain regions than cases of true typhoïd.

AN AMERICAN FIELD HOSPITAL

A field hospital of the type used in the American army has just been exhibited in Paris. It is due to the generosity of the Fahnestock family of New York. It consists of twenty-two khaki-colored canvas tents. Eight conical tents are for the use of the staff. Six oblong tents are to be used for the wounded; each tent can receive eighteen so that there is a capacity of 108 wounded. Five hospital tents have a double covering, a circulation of air between the two layers of canvas maintaining an even temperature within the tents. Three of these five are for operation rooms; the fourth is used as a pharmacy and the fifth is for the reserve medical appliances. Three tents are intended each to accommodate two officers. These twenty-two tents and their contents are placed on four trucks furnished by the French government. To this unit, which is about to go to the front, are attached ten large automobiles belonging to the American hospital of Neuilly. Each of these cars can carry four or five wounded men sitting and three who are unable to sit up. The great utility of this ambulance will be in seeking out the wounded at the first aid post behind the line of fire and transporting them rapidly after the first dressings to the stations.

PHYSICIANS WHO HAVE RECEIVED THE DECORATION OF THE LEGION OF HONOR

Among the physicians serving in the army whose names have been inscribed on the roll of the Legion of Honor are a certain number of professors and agrégés of our medical schools. Two of these nominations deserve particular mention. Dr. Chavannaz, professor of clinical surgery at the Faculté de médecine de Bordeaux, head physician of the ambulance of the army corps "has insisted, in spite of his age, on performing campaign duty; he has rendered the greatest services to the wounded by his operative skill and his organizing talent." Dr. Paviot, professor of pathologic anatomy at the Faculté de médecine de Lyon, "has, since the beginning of hostilities, directed an evacuation hospital under difficult circumstances with a technical competence and an initiative which are equalled only by his absolute devotion to the service."

LONDON LETTER

London, June 4, 1915.

The War

GERMAN AIR RAIDS

German airships have dropped incendiary bombs on Southend, on the estuary of the Thames, causing fires which were promptly extinguished, but not without the loss of lives of several women and children. They also reached some of the outlying parts of London with a similar result. Four adults—three women and one old man—and two children have perished. The incendiary material used is "thermit," which was originally a mixture of equal parts of iron oxid and finely divided aluminum. This mixture may be ignited by a match of magnesium wire ending in a small quantity. When started in this manner, the ignition spreads through the whole of the mixture, reducing the iron oxid to metallic iron, with formation of aluminum oxid, and evolution of an amount of heat sufficient to melt the iron. Thermit has been largely used to weld wrought and cast-iron objects and to mend fractures in machinery, the operation being carried out by surrounding the point to be welded with a metallic box filled with thermit. Better results have been obtained by modifications of the original formula, in which powdered aluminum and calcium, or a powdered alloy of these two metals, are used instead of aluminum alone.

THE WAR MEDICAL SERVICE

In his presidential address to the General Medical Council, Sir Donald MacAlister reviewed the position created by the great demand for surgeons of the new armies. He pointed out that our professional reserves, at no time large, have been drawn on to the full. Throughout the kingdom, organized efforts are in progress for such readjustments of civil practice as will liberate all who can possibly be spared for the medical service of the navy and army. In these efforts, the Scottish Emergency Committee and local committees of the British Medical Association, with the effective cooperation of members of this council, have taken a leading part. The services of qualified women have been freely offered and accepted for many of the places that are now vacant at home. Senior students enrolled in the combatant ranks have been recalled by the War Office and directed to complete their curriculum with a view to qualification for the Royal Army Medical Corps. From overseas have come large numbers of our colonial colleagues, who are possessed of qualifications registerable in this country, and so are eligible for commissions in our army. Owing to a special regulation of the council, about sixty Belgian doctors of medicine have become legally qualified to practice in Britain and to occupy professional positions in public and other institutions. From all these sources we have obtained timely and valuable help, but they must be supplemented. If we are to make good the losses in the Army Medical Service we must accumulate larger reserves. The casualty lists and the lists also of awards for conspicuous gallantry testify to the magnitude of these losses. Inquiries as to the number of students actually in attendance on courses of medical study at the several schools show that, at the end of 1914, there were considerably over 1,000 fewer than in 1913. The recall of senior students from active service has had a favorable effect on the year now drawing to a close, but we must expect during the next few years a falling off of about 250 per annum in the number who become qualified as medical practitioners. Surgeons in Canada have been desirous of coming to the aid of the mother country, but have been hindered by difficulties connected with their local registration laws. Sir Donald MacAlister communicated with the various medical authorities concerned, and the response has exceeded all his expectations. From Ontario, British Columbia, Saskatchewan, Manitoba and Alberta came messages stating that legislation had already been initiated for the removal of existing provincial restrictions, and that the provinces desired that reciprocity with this country might be established at the earliest possible date. When the necessary steps are completed—and he has reason to think that no obstacles need be apprehended on this side of the Atlantic—all the provinces of Canada will have severally entered into reciprocal relations with the United Kingdom, the way will be open for the application of the medical act to the dominion as a whole, and the medical federation of the empire will be accomplished.

THE INCREASE OF WOMEN PHYSICIANS

The great increase in the number of women physicians in this country—from two, forty years ago, to over 1,000 at present—is reflected by the enlargement of the London School of Medicine for Women, at a cost of $100,000. Sixty new students will join the school in October, and the pressure on the space in the laboratory at which 220 are working is already very great. The increase in the number of women physicians was in progress before the war, but has been greatly accelerated by the shortage of men physicians produced by it.

INCREASE OF CANCER

The annual report for 1913 of the registrar-general, which has recently been published, unfortunately confirms the view that cancer is increasing. The deaths from this cause were greater in 1913 than in any previous year on record. The mortality among males was equal to 947 per million living, and among females to 1,155 per million, compared with rates of 913 and 117, respectively, in the year 1912. The tables show a constantly increasing mortality in proportion to urbanization, which is more serious in the case of males than females. According to the registrar-general, Dr. Stevenson, differences of the dimensions shown may be due to the better facilities for diagnosis in the urban areas, where a much larger proportion of the deaths occur in institutions in which postmortem examination is the rule, than, as in private practice, the exception. The considerable increase of mortality now recorded is very uniform, being common to the two sexes in every class of area. It is also widely spread over the different age periods, the chief exception being in the case of women at very advanced ages. The excess of female mortality over that of males is concentrated mainly on the ages from 25 to 55. At other ages there is either practical equality or a male excess, as at ages from 60 to 85 in the country generally. The increase of mortality from cancer of various organs differs. In both sexes the most rapid rates of increase are furnished by cancer of the alimentary tract, especially the intestines and stomach. Diseases of the female breasts also claim a rapidly increasing number of victims, while mortality from uterine cancer is diminishing. Childbearing appears to increase the risk of uterine and diminishes that of mammary cancer. The mortality from cancer of the liver remains stationary. Secondary growths are mentioned with especial frequency in cases of breast cancer. Deaths thus certified amount to 33 per cent. in the case of the breast, whereas in the case of most other important sites the proportion falls short of 10 per cent.

Marriages

WILBURN H. SMITH, M.D., to Mrs. Clara Rood Royce Akeley, both of Long Beach, Cal., at Santa Barbara, Calif., June 10.

FRANK HARMAN SMITH, M.D., Clintonville, Ky., to Miss Maude Hooser of Crowder, Okla., at Jeffersonville, Ind., June 2.

EDGAR FLOYD SEWELL, M.D., Somerville, Mass., to Miss Edna Florence Gordon of West Somerville, Mass., June 9.

MATTHEW HAMMOND GRISWOLD, M.D., Kensington, Conn., to Miss Vermadel Rodgers of Burlington, Vt., June 24.

JEREMIAH MILTON NEWMAN, M.D., Philadelphia, to Miss Ora Arneta Johnson of Richmond, Va., Dec. 2, 1914.

CLARKE JACKSON STALLWORTH, M.D., Thomaston, Ala., to Miss Mary Carter Adams, at Consul, Ala., May 19.

THOMAS GRIER MILLER, M.D., Philadelphia, to Miss Sarah H. George of Baltimore, in Philadelphia, June 3.

JOSEPH FRANCIS MELOAN, M.D., Media, Ill., to Miss Josephine Michael Block of Elsberry, Mo., June 1.

IRVING GEORGE WILTROUT, M.D., Swanville, Minn., to Miss Louise Schaefer of Two Rivers, Wis., June 5.

CHARLES MORGAN WILLIAMS, M.D., to Miss Jane Little Willison, both of Washington, N. J., June 8.

LEO ALBERT GOODMAN, M.D., Dubuque, Ia., to Miss Mary Cecelia Downey of Hammond, Ind., June 12.

THOMAS JEROME HENNEBERRY, M.D., Cheyenne, Wyo., to Miss Fredrika Dolcater, at Denver, June 2.

NORBERT CHARLES NITSCH, M.D., to Miss Ethel Marie Katzenberger, both of Baltimore, June 23.

CONSTANTINE J. MCGUIRE, JR., M.D., to Miss Alice M. Cordier, both of New York City, June 10.

CHARLES TAYLOR MOSS, M.D., Champaign, Ill., to Miss Lillian K. Christoph of Chicago, June 14.

CLYDE LE GRANDE SEITZ, M.D., to Miss Florence Elizabeth Heitshue, both of Glen Rock, Pa., June 2.

LOUIS F. MOLLEUR, M.D., to Mrs. Frank Reynolds, both of Melrose, Mont., in Butte, Mont., recently.

ELMER D. MADDUX, M.D., LaCrosse, Ind., to Miss Ethyle Schriver of York, Pa., in Chicago, June 3.

JAMES RUSSELL STEWART, M.D., to Miss Belle Williams, both of Colorado Springs, Colo., June 17.

THOMAS EDWARD CONLEY, M.D., Park Ridge, Ill., to Miss Ellen May Raynor of Chicago, June 21.

GEORGE TRAYLOR EDWARDS, M.D., Elba, Ala., to Miss Annie Lou Dudley of Mulberry, Ala., June 2.

FRANK MONTGOMERY, M.D., Denver, to Miss Claire Le Wallen of Manhattan, Kan., April 29.

JOSEPH IRVING LIND, M.D., New Haven, Conn., to Miss Stella A. Mann of Baltimore, June 7.

CHARLES CLEVELAND ADAMS, M.D., to Miss Madge Campbell, both of Longview, Tex., June 5.

JOHN WESLEY CLAYTON, M.D., Johnston City, Ill., to Miss Agnes Doty of Marion, Ill., June 2.

PAUL CLEMENTS, M.D., Culion, P. I., to Miss Trinidad Munoz, at Manila, P. I., April 11.

RUDOLPH E. J. ODEN, M.D., Cadillac, Mich., to Miss Olga Wahlquist of Minneapolis, June 8.

BURGOYNE H. GIBSON, M.D., Richmond, Ky., to Miss Mattie E. Lewis of Hyden, Ky., recently.

ANDREW SARGENT, M.D., Hopkinsville, Ky., to Miss Isabelle D. King of Philadelphia, May 5.

ROY ALVIN SCHNACKE, M.D., to Miss Thursnelda Abetmeyer, both of St. Paul, June 22.

GEORGE STANLEY BARBER, M.D., to Miss Alma Lucile Fain, both of Lawton, Okla., June 9.

CHARLES OTTO MOORE, M.D., to Miss Josephine Durkee, both of Salt Lake City, June 3.

WALTER SAULSBURY NIBLETT, M.D., to Miss Ethel Wolfe, both of Baltimore, June 9.

WILLIAM H. MARTIN, M.D., to Mrs. Anna P. Doyle, both of Houston, Tex., June 1.

HENRY JAMES, M.D., to Miss Rosalie O'Brien, both of New York City, June 8.

Deaths

Charles Edward Woodruff, M.D. Jefferson Medical College, 1886; lieutenant-colonel, U. S. Army (retired); who entered the Navy as assistant surgeon in 1866 and a year later transferred to the Medical Corps of the Army; an officer of distinguished service and awarded two medals for war service; author of several books and monographs, the best known of which are probably his work on, "The Effects of Tropical Light on White People," which appeared ten years ago, and his treatise on "Medical Ethnology," which appeared last month; a Fellow of the American Medical Association; assistant editor of *Modern Medicine;* died at his home in New Rochelle, N. Y., June 15, aged 54.

Charles Elihu Slocum, M.D. College of Physicians and Surgeons in the City of New York, 1869; Bellevue Hospital Medical College, 1876; Jefferson Medical College, 1876; at one time president of the Defiance County (Ohio) Medical Association and vice president of the District Medical Society; for several years professor of psychology and ethics in the Cleveland College of Physicians and Surgeons; at one time vice president of the Merchants' and First National banks at Defiance, Ohio; for many years a resident of Toledo; died in the Flower Hospital in that city, June 7, aged 74.

Jacob Michaux, M.D. Medical College of Virginia, Richmond, 1876; a member and once president of the Medical Society of Virginia and also president of the Richmond Academy of Medicine and Surgery; professor of materia medica and therapeutics in the University College of Medicine, Richmond, from its foundation in 1893 until 1912; assistant surgeon and later surgeon of the First Infantry, Virginia Volunteers; in 1889 appointed a member of the State Medical Board; one of the most prominent practitioners of Richmond; died at his home in that city, June 7, after a long illness, aged 63.

Abraham Barker Cates, M.D. Harvard Medical School, 1880; a Fellow of the American Medical Association and professor of obstetrics in the College of Medicine and Surgery of the University of Minnesota, Minneapolis; one of the leaders in the efforts in behalf of the Elliott Memorial University and the Trast Endowment; obstetrician to the Northwestern, Asbury and Swedish hospitals, Minneapolis, and attending physician to the Bethany Home; died at his summer home in Clearwater Lake, Minn., June 10, aged 61.

John Hildreth McCollom, M.D. Harvard Medical School, 1869; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society and American Society of Pathology and Bacteriology, and American Pediatric Society; emeritus professor of contagious diseases in his alma mater, and medical director of the Boston City Hospital; died at his home in Boston, June 13, aged 71.

Arthur Worrall Palmer, M.D. New York Homeopathic Medical College, New York City, 1883; surgeon and professor of laryngology at the New York Ophthalmic Hospital; laryngologist to the Metropolitan Hospital, New York City; formerly editor and publisher of the *Journal of Ophthalmology, Otology and Laryngology;* died at his home in New York City, June 10, aged 52.

Joseph Walker Floyd, M.D. Medical College of the State of South Carolina, Charleston, 1900; a member of the South Carolina Medical Association and Medical Society of the State of North Carolina; chairman of the board of trustees of the Tabor (N. C.) Graded School; a veteran of the Spanish-American War; died at his home in Tabor, June 4, from cerebral hemorrhage, aged 41.

Henry Janes, M.D. College of Physicians and Surgeons in the City of New York, 1855; a Fellow of the American Medical Association; surgeon of Volunteers during the Civil War in which he served as brevet lieutenant-colonel; at one time in command of the hospital ship *Maine*; and surgeon-general of the state of Vermont; died at his home in Waterbury, Vt., June 10, aged 82.

Henry Osborn Hanawalt, M.D. Medical College of Ohio, Cincinnati, 1873; professor of organic nervous diseases in the University of Kansas, School of Medicine; a veteran of the Civil War; at one time president of the Kansas Medical Society and the Jackson County (Mo.) Medical Society; died at his home in Kansas City, June 5, aged 70.

George B. Graves, M.D. University of the South, Sewanee, Tenn., 1903; formerly a member of the State Medical Association of Texas; formerly surgeon to the Virginia Pocahontas Coal Company, Coalwood, W. Va., and a member of the West Virginia State Medical Association; died at his home in Valentine, Tex., June 7, aged 34.

William Wabash Kneale, M.D. University of Virginia, Charlottesville, 1889; a member of the Indiana State Medical Association; for four years a member of the common council of Anderson, Ind.; physician to the American Steel and Wire Company; died at his home in Anderson, June 7, from cerebral hemorrhage, aged 54.

Lee Whitfield Staton, M.D. Kentucky School of Medicine, Louisville, 1879; of Richmond, Va.; acting assistant surgeon, U. S. P. H. S., for eighteen years; aged 58; a member of the Association of Military Surgeons of the United States; was thrown from his buggy, June 7, fracturing his skull and died fifteen minutes later.

James Small, M.D. American Medical College, Eclectic, St. Louis, 1880; resident physician to the Nuyaka Mission School, I. T., in 1890-1891; for many years a practitioner of north Arkansas, south Missouri and eastern Oklahoma; died at his home in Steedman, Okla., April 18, from pneumonia, aged 73.

Hal Laureston Speedy, M.D. Western Pennsylvania Medical College, Pittsburgh, 1911; formerly intern in St. John's Hospital, Pittsburgh, but for the last six months, assistant superintendent of the Santa Fe System hospital at Albuquerque, N. M.; died in Albuquerque, June 3, aged 29.

Maurice J. O'Connor, M.D. Northwestern University Medical School, Chicago, 1903; of Williams, Ia.; was crushed under his overturned automobile, near his home, June 7, and died a few hours later in St. Joseph's Mercy Hospital in Webster City, Ia., from his injuries, aged 38.

Powhattan Green Trent, M.D. Jefferson Medical College, 1867; a member of the Medical Association of the State of Alabama; formerly president of the Randolph County (Ala.) Board of Censors; died at his home in Roanoke, Ala., May 31, from heart disease, aged 70.

Amos T. Davis, M.D. Cincinnati College of Medicine and Surgery, 1859; formerly of Flat Rock, Ind.; died in his barrack at the National Home for Disabled Volunteer Soldiers, National Military Home, Ind., April 5, from acute dilatation of the heart, aged 79.

Edward Ellerslie Goodman, M.D. Jefferson Medical College, 1874; for forty years a practitioner of Altoona and at one time physician of Blair County; died at his home in Altoona, June 1, from cerebral hemorrhage, aged 65.

Thomas B. Ross, M.D. Washington University, St. Louis, 1866; a veteran of the Civil War and for thirty years a practitioner of Saline County, Mo.; died at his home in Slater, Mo., March 11, from sclerosis of the brain, aged 81.

James Edward Rankin, M.D. Keokuk (Ia.) Medical College, 1891; of Watertown, Ill.; died in the Watertown State Hospital, June 6, from the effects of poison, self-administered, it is believed, with suicidal intent, aged 46.

Ianthus G. Johnson, M.D. Albany (N. Y.) Medical College, 1853; for more than sixty years a practitioner of Greenfield Center, N. Y.; supervisor of the town of Greenfield for two years; died at his home, June 1, aged 85.

John Werton Hampton, M.D. Rush Medical College, 1912; of Norway, Mich.; physician for the Loretto (Mich.) Mining Company; died in St. Joseph's Hospital, Chicago, June 3, from lymphatic leukemia, aged 26.

Karl A. Norderling, M.D. College of Physicians and Surgeons, Chicago, 1887; formerly of Chicago, but since 1908 a resident of Paxton, Ill.; died at his home in that city, June 9, after a long illness, aged 58.

John Fullilove Taylor, M.D. Vermont Medical College, Woodstock, 1853; of Holly Grove, Ark.; a Confederate veteran; died at the home of his daughter in Little Rock, Ark., May 29, aged 81.

Edward F. Lake, M.D. Syracuse (N. Y.) University, 1882; of Denver; died at his home in that city, June 10, from malignant disease of the throat after an illness of more than two years, aged 55.

Daniel G. Allinder, M.D. University of Pennsylvania, Philadelphia, 1869; a veteran of the Civil War and formerly a practitioner of Pittsburgh; died in Washington, D. C., May 28.

William Henry Stettler, M.D. Bellevue Hospital Medical College, 1891; of Spinnerstown, Pa.; died in the German Hospital, Philadelphia, June 8, from strangulated hernia, aged 45.

Ross V. Dickey, M.D. Eclectic Medical Institute, Cincinnati, 1899; county physician of Allen County, Ohio; died at his home in Lima, June 9, from cerebral hemorrhage, aged 46.

John Tinsley Harrison, M.D. Atlanta (Ga.) Medical College, 1881; a member of the Medical Association of the State of Alabama; died at his home in Talladega, Ala., May 27, aged 81.

George Henry Hutchings, M.D. Eclectic Medical College of the City of New York, 1884; a practitioner for more than fifty years; died at his home in Woburn, Mass., May 30, aged 74.

Matthew Joseph McKenna, M.D. Long Island College Hospital, Brooklyn, 1912; Bay Ridge, Brooklyn; died at the home of his uncle in Brooklyn, June 4, from nephritis, aged 24.

George W. Loar, M.D. Physio-Medical Institute, Cincinnati, 1863; for nearly half a century a resident of Monroe, Ia.; died at his home, March 23, from pneumonia, aged 69.

William Webster Small, M.D. Ohio Medical College, Cincinnati, 1873; formerly of Indianapolis; died in Loomis, Calif., May 5, from chronic inflammation of the spleen, aged 64.

Alfred H. Metts (license, Indiana, 1897) of Fort Wayne, Ind.; a practitioner for nearly half a century; died suddenly in Ossian, Ind., June 4, from heart disease, aged 77.

Roy Earl Mauldin, M.D. Mississippi Medical College, Meridian, 1912; of Artesia, Miss.; aged 27, was shot and instantly killed by a druggist of that place, June 3.

John Blair Guthrie, M.D. University of Toronto, 1889; an advertising specialist of Illinois; died at his home in Evanston, Ill., June 5, from tuberculosis, aged 45.

Benedict Jones Wetherby, M.D. Rush Medical College, 1884; a Fellow of the American Medical Association; died at his home in Wilkes-Barre, Pa., May 28, aged 55.

John Gants, M.D. Eclectic Medical Institute, Cincinnati, 1872; for fifty-nine years a practitioner of Cromwell, Ind.; died at his home in that place, June 2, aged 82.

Orlando C. Stewart, M.D. University of Maryland, Baltimore, 1878; formerly of Cookport, Pa.; died at his home in Toledo, Ohio, June 2, from heart disease.

Samuel Elliott McCreary, M.D. Miami Medical College, Cincinnati, 1880; died in his office in Keokuk, Iowa, May 28, from cerebral hemorrhage, aged 58.

John Frederick Harrington, M.D. Keokuk (Iowa) Medical College, 1895; of Stacyville, Ia.; died in St. Francis' Hospital, Waterloo, Iowa, June 2, aged 53.

William P. Parr, M.D. Jefferson Medical College, 1859; died at his home in Wichita, Kan., April 6, from chronic diarrhea and rheumatism, aged 82.

M. D. Dunham, M.D. Chattanooga (Tenn.) Medical College, 1903; died at his home in Georgetown, Tenn., June 6, from heart disease, aged 60.

Thomas Burke Walsh, M.D. University of Illinois, Chicago, 1912; died at his home in Artesian, S. D., June 3, from heart disease, aged 30.

Franklin J. Clay Griffith, M.D. Cincinnati College of Medicine and Surgery, 1874; died at his home in Annapolis, Ill., May 27, aged 71.

Jesse Dwight Bacon, M.D. American Medical College, Cincinnati, 1856; died at his home in Cannelton, Ind., June 9, aged 83.

Isaac R. Landis, M.D. Jefferson Medical College, 1865; died at his home in Philadelphia, May 29, from nephritis, aged 74.

Isaac H. Kelly, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1880; died at his home in Stone Fort, Ill., May 27.

Joseph Prevett (license, Massachusetts, 1904), an Italian practitioner of Boston; died in Derry, N. H., June 6, aged 34.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

ARTICLES REFUSED RECOGNITION

Report of the Council on Pharmacy and Chemistry

Below appear abstracts of the Council's action on articles refused recognition which were not deemed of sufficient importance to require a lengthy report.

Venodine

Venodine (The Intravenous Products Co., Denver), according to information sent to the Council, is "an Intravenous Iodine Compound" put up in ampules each of which contains "28 grains of Sodium Iodide, ⅛ grain each of Beechwood Creosote and Guaiacol in a suitable vehicle, and excipients to enhance its compatibility with the circulating blood."

The "Therapeutic Indications" include "infectious diseases, such as syphilis, tuberculosis, bronchitis, bacteraemias associated with chronic and acute nephritis (Bright's disease), and other infections." The Council held as unwarranted and grossly exaggerated the following therapeutic claims: (1) that the full therapeutic value of iodin medication cannot be readily obtained except by intravenous injection; (2) that Venodine is "of exceptional value in tuberculosis"; (3) that in pneumonia Venodine "combines the anaesthetic properties of creosote and guaiacol with the germicidal value of iodine"; (4) that "Venodine (or its iodine component) has long enjoyed an exceptional reputation" as of great value in many infectious diseases including bacteremias. The facts on these points are the following:

1. Since iodids are easily absorbed from the mucous membrane of the gastro-intestinal tract and are usually well tolerated by the stomach, there is no reason for resorting to intravenous injection in their administration.
2. The indiscriminate administration of iodids for pulmonary tuberculosis is strongly to be condemned. The cases in which they can be given to tuberculous patients without doing harm must be very carefully selected.
3. There is no evidence either that creosote is excreted by the lungs in sufficient quantity to exert an anesthetic influence or that iodin is present in the circulation of the lungs or in the bronchial secretions in a form which is capable of exerting any germicidal action whatever.
4. It is generally held that the systemic administration of iodin compounds in bacteremias is useless.

The Council also held the name "Venodine" objectionable in that it fails to indicate the chief ingredient (sodium iodid) of this simple pharmaceutical mixture. The statement in a circular that "Venodine is a sterile solution representing 1.54 Gm. (24 grains) of iodine in chemical combination together with creosote and guaiacol" is likely to lead physicians to use the preparation without considering that its chief constituent is the well-known substance sodium iodid, particularly so since no reference to sodium iodid is made in the circular.

Furthermore, the Council held that the combination of two such similar substances as creosote and guaiacol (the second a constituent of the first) as given in the published formula, stamps Venodine as unscientific; it adds mystery to the preparation, but does not increase its efficiency, and is therefore against the best interests of the public.

The Council voted that Venodine be held ineligible for conflict with Rules 6, 8 and 10.

This report having been submitted to the manufacturers, in accordance with the Council's custom, and the reply affording no reason for modifying the findings, its publication has now been authorized.

Calcreose

In response to inquiries and in view of the extensive advertising propaganda, the Council, on Dec. 19, 1913, took up for consideration Calcreose (Maltbie Chemical Company, Newark, N. J.). Examination showed that the preparation contained, in loose combination, approximately equal weights of creosote and lime. The claims made in the advertising "literature" were extravagant and uncritical, and the Council therefore held Calcreose ineligible for New and Nonofficial Remedies.

In June, 1914, at the request of the Maltbie Chemical Company, the Council undertook a reconsideration of the preparation. The advertising claims were now found more conservative. Before the existing claims could be judged, however, the Council deemed it necessary to require from the company satisfactory proof (1) that the large doses of Calcreose recommended and administered actually furnish large amounts of creosote to the blood, and (2) that patients taking these large doses do not suffer from digestive disturbances, loss of nutrition, albumin in the urine or phenol urine, as claimed. The Council accordingly advised the company of this requirement, at the same time stipulating that nothing in the report should be interpreted as indicating a belief on the part of the Council that enormous doses of creosote are necessary for, or will promote a cure of tuberculosis.

The Maltbie Chemical Company has not up to the present date furnished this proof, but has evinced a disposition to make the Council's holding Calcreose under advisement appear in the guise of a quasi-approval. It is therefore recommended that Calcreose be refused recognition for conflict with Rule 6.

Standard Radium Solution for Intravenous Use

Standard Radium Solution for Intravenous Use (Radium Chemical Co., Pittsburgh) is sold in ampules each containing radium bromid equivalent to 0.05 microgram radium element and 0.0002 gm. or less of barium bromid dissolved in 2 c.c. sterile normal physiologic salt solution.

While the Council has confirmed the claimed composition of Standard Radium Solution for Intravenous Use so far as concerns the radium content, it refused recognition to the preparation because there is no clear evidence that intravenous injection has any advantage over the other methods of administering radium. The Council holds that radium for internal medical use is in an experimental stage, that, on the basis of our present knowledge, this substance should be used intravenously only by those in a position to study its effect carefully, and in an institution equipped with the necessary facilities for such study. For these reasons and on account of the risk involved with any form of intravenous medication, the Council voted not to accept Standard Radium Solution for Intravenous Use for inclusion with New and Nonofficial Remedies.

In accordance with the Council's regular procedure this report was submitted to the Radium Chemical Company for comment. The Council, after considering the new evidence offered, decided that its previous action should be allowed to stand and accordingly authorized publication.

Rheumalgine

Rheumalgine (Eli Lilly & Co., Indianapolis) is put up both in tablet form and as a liquid. Each tablet, or teaspoonful of the liquid, is said to contain:

"Strontium salicylate from Natural Oil	5 gr.
Hexamethylenamin	2 gr.
Colchicine	1/200 gr."

The advertising matter contains several statements regarding the individual ingredients to which objection must be made.

It is claimed (quoting from Hare) that strontium salicylate

> ". . . is not so disagreeable to the taste as the corresponding sodium salts, and more important still, it is far less apt to disorder the stomach."

"Taste" is a difficult subject to dispute; but in the experience of the referee patients object more to the strontium than to the sodium salt. No evidence is submitted to prove that the strontium salt is less apt to disorder the stomach. In observations made under the direction of the referee, the nauseant and emetic doses are about the same as, or even less than, those of sodium salicylate.

Under hexamethylenamin, the recommendations are not confined to its recognized use as a urinary antiseptic; it is also said to be "unexcelled" as a "germicide," and to prevent the formation of urate and phosphate deposits. These statements are contrary to facts.

> "Rheumalgine . . . may be used in all cases where the salicylates are indicated. It is superior to preparations containing sodium salicylate, in that it does not cause nausea or disturb the digestion."

Both the preceding statements are misleading. The necessity of giving 1/200 grain of colchicin for each 5 grains of salicylate would certainly interfere with the use of adequate doses of the latter. The colchicin would produce digestive disturbance quite apart from the salicylate.

The mixture is described as:

> ". . . ANTIRHEUMATIC, ANTIPYRETIC, URINARY ANTISEPTIC, AND URIC ACID ELIMINANT. Useful in Acute Articular and Chronic Rheumatism, Muscular Pains, Lumbago, Sciatica, Migraine of the Rheumatic, Gout, and in Nervous Irritability of the Gouty or Lithemic."

The facts are: Salicylates are useful in some of these conditions, colchicin occasionally in a few, hexamethylenamin in none. The combination is conducive to uncritical prescribing. For instance, salicylates are effective in acute articular rheumatism; hexamethylenamin and colchicin are useless; salicylates are of very little use in chronic rheumatism, sciatica and nervous irritability, while hexamethylenamin and colchicin are useless in these conditions; colchicin is sometimes effective in gout, salicylates perhaps also; hexamethylenamin is not.

Attention should also be called to the high dosage of colchicin, namely, 1/100 to 1/50 of a grain of the alkaloid, every three or four hours, the dose then to be "slightly reduced," but continued for several days; or in chronic cases, 1/100 to 1/30 grain per day, continued indefinitely. This dosage appears high, if a really active preparation is used.

Finally, the name "Rheumalgine" encourages thoughtless and unscientific prescribing. If a mixture is used at all, the prescriber should be constantly reminded of its composition.

It is therefore recommended that Rheumalgine be held in conflict with Rules 6 (unwarranted therapeutic claims), 8 (non-descriptive name) and 10 (unscientific composition).

Correspondence

Cancer and Heredity

To the Editor:—In Dr. Slye's recent communication (The Incidence and Inheritability of Spontaneous Cancer in Mice. *Jour. Med. Research,* 1915, xxxii, 159) concerning the inheritance of cancer, reference is made by way of illustration to a type-color inheritance which, since it is quite contrary to the more generally accepted principles of mendelian inheritance, requires critical comment.

On page 160 she says, "Let me at this point recall some of the basic facts of heredity." She then proceeds, using the customary mendelian terms "dominant" and "recessive," to describe a cross between *gray and albino mice,* and indicates results which are incompatible with those of other investigators. She furthermore furnishes no data in support of this more or less revolutionary hypothesis.

As Castle, Allen, Bateson, Durham, Cuenot, Plate, Davenport, and many others have carried on investigations on this particular problem in genetics and have reached results contrary to those predicted by Slye, it seems reasonable to demand a full presentation of her data on the inheritance of *albinism* in mice. In fact, a careful repetition of such work should be expected before her claims are to be accepted.

To those unfamiliar with the work of the geneticists above mentioned, Slye's paper might be taken as presenting the well-known principles of mendelian inheritance. With a knowledge of the facts, however, it is obvious that the type of inheritance which she outlines has not been observed in similar material by any of the investigators above mentioned. That this discrepancy is not based on an oversight on the part of Miss Slye has been determined by personal correspondence.

C. C. Little, Boston.

Cancer Commission of Harvard University.

[The foregoing letter was referred to Dr. Slye who writes:]

To the Editor:—Dr. Little's criticism is of course concerned wholly with a dispute on questions of mendelian interpretation. Such a dispute in no way affects the validity of my results in cancer. Unfortunately, at the present time there is so much difference of opinion on almost every point in the mendelian doctrines that one could scarcely put out any results which would satisfy all the adherents of the different hypotheses.

The production of about a thousand spontaneous cancers in specified strains, and the nonoccurrence among this entire number of any cancer in certain other specified strains, no matter what test is applied to them, demonstrates to every reasonable probability the inheritability of cancer, and when these results are characteristically and systematically obtained in such an immense stock as to furnish over 10,000 necropsies and a living stock of about 11,000 mice, with a steady production of between seventy-five and a hundred cancer patients all the time and almost without exception within proved cancer strains, this reasonable probability is raised to an almost indisputable fact; and whether or not my strains of house mice have behaved in hybrid crosses in accordance with the established canon has no bearing whatever on the behavior of cancer. This question lies in quite another field.

In regard to my use of the terms "dominant" and "recessive" with respect to cancer behavior: It is almost the established conviction today that these terms are descriptive and not dynamic, and they furnish in the description of the behavior of cancer in heredity a graphic and convenient tool. That is probably all they furnish in the exposition of any problem in heredity. They may be discarded for even that service within the next few years.

The chief value in the study of cancer of the use of a partial mendelian background of comparison (although the details may be under dispute) is to show to those most interested how far back in a strain cancer may lie and still be transmitted, and by what sorts of crosses this can be done; and to make it plain that in deciding on the inheritability of human cancer and of the method of elimination of cancer from a family, one cannot take as a criterion of judgment whether or not the immediate parents exhibited cancer.

I do not desire or make a strict mendelian interpretation of my results; indeed, I should deplore such an interpretation. I have used mendelian comparisons (1) to make clear the influence of a more or less remote ancestry on later generations of progeny; (2) to show how cancer, like albinism, has been transmitted in my strains through generation after generation *by individuals who did not exhibit it;* and (3) to demonstrate how cancer thus transmitted finally leaps into expression in the offspring of a pair neither of whom expresses cancer, but both of whom bear it potentially.

The approximation even to conservative mendelian results is strikingly close for such a characteristic as cancer.

Maud Slye, Chicago.
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The Notary Fee in Applications for License Under the Harrison Narcotic Law

To the Editor:—I have just received notice from the collector of internal revenue that my application for a license, under the Harrison Narcotic Law, must be sworn to before a notary before it is sent to him.

It seems to me that we ought to make a strong protest against this very unjust rule. The fee for this service is from twenty-five to fifty cents, depending on the location. Usually it is fifty cents, which is not a very large sum; but in the aggregate it will amount to many thousands of dollars, and for what good? Absolutely none, except for the notary.

We have all complied with the law, and our licenses were duly paid for and issued for the four remaining months of the fiscal year. No notary fees were required for that. Every physician in the country entitled to use, prescribe or dispense any drug coming under the law is on record at his respective collector's office. The penalty for violation of the law in any way is very severe; therefore, why this unjust fee?

Henry F. Hoyt, M.D., Long Beach, Calif.

Kaolin, Clay Eaters and Clay-Containing Streams

To the Editor:—Noting in The Journal of June 12 editorial and other reference to the subject of the adsorption, perhaps by virtue of colloidal states of solution, by kaolin, I write to suggest that, in light of the work on its effect on the intestinal bacteria, investigations of the peculiar physiologic or pathologic state of the "clay eaters," numerous in some localities (North Carolina mountains) would be interesting. Especially would this be interesting in connection with the thought and the slight amount of experimental evidence of the possibility of life without the ingestion or the presence in the intestinal canal of micro-organisms.

Entirely aside from all but its physicochemical bearing is the curious condition of the river waters in many of the Southern streams. Even when practically motionless, they seem to hold in suspension indefinitely the whole or a considerable part of the finely divided clay particles of the soil of the territories which they drain. Much attention has for years been devoted to the fluvial waters and drinking water generally by the Italians, lately especially in connection with the etiology of pellagra. It might be that a study of the questions involved would result in considerable advance in our knowledge of many obscure problems of intestinal metabolism.

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To the Editor:—We have recently had presented in our city films representing "twilight sleep," accompanied by a lecture by a "German doctor." It purports to be under the auspices of the "Motherhood Educational Society." A committee of the Civic League of Saginaw, after seeing it in Bay City, protested against its presentation here—vainly, however, as the mayor found nothing objectionable in either pictures or lecture, and rebuked the women who objected to the commercial exploitation of maternity.

The lecturer subtly attacked the medical profession throughout. At the close, he invites questions from the audience. A good opportunity to test the reaction of the production is thus afforded. Some of the questions were offensive; on these the lecturer waxed witty, and there was hilarity in a considerable part of the audience. Aside from the question of bad taste, his statements were absolutely untrue. He claimed that twilight sleep was successful in 90 per cent. of all maternity cases.

What can be done to prevent such mischievous presentations to mixed audiences?

I have read with interest The Journal of May 22 with its reports of scopolamin-morphin treatment. In the light of such reports, a production such as was presented here is misleading and harmful in every way.

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While the value and efficacy of typhoid immunization are undisputed and difficult to overrate, and while occurrences as cited are probably very rare, the foregoing experience may be timely and valuable in emphasizing the fallacy which seems to prevail in medical circles, namely, that recent typhoid immunization entirely eliminates typhoid fever in questions of abdominal diagnosis. The great mass of conclusive figures in favor of prophylactic typhoid vaccination are apt to blind us to the possibility of its failure in a certain very small percentage of cases for reasons which should be carefully inquired into.

S. W. Sappington, M.D., Philadelphia.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POSTSACRAL SINUS

To the Editor:—As I have been unable to find anything in the books at my disposal, I should consider it a favor if you would give me some information on postsacral sinus, its etiology, pathology, prognosis and treatment.

C. C. I.

Answer.—The term "postsacral sinus" has no specific meaning, as a sinus in the postsacral region may be due to a variety of causes as, for instance, osteomyelitis of the sacrum or coccyx of tuberculous or other origin; tuberculosis of the sacro-iliac joint, or of the hip, etc. Excluding bone or joint trouble of this kind, the most frequent cause of a sinus in this region is a persistence of the blastopore, or neurenteric canal, one of the earliest fetal canals extending from the surface of the embryo near the caudal end to the notochord.

This canal usually entirely disappears at a very early period of fetal life. There is almost always a small dimple in the lower sacral or coccygeal region which marks the point of the blastopore. Occasionally the blastopore fails to disappear entirely, a small tract of varying length remaining lined with epithelium. This little tract may be closed on the surface, in which case a small cyst may develop filled with sebaceous material. The cyst may become inflamed, open and discharge the sebaceous material, when a little sinus will persist.

Again, the blastopore may fail to close, in which case an epithelial-lined sinus of congenital origin may be present; or the tract may open on the surface at some later time of life, and a sinus persist. A similar condition is occasionally found at the umbilicus, because of a persistence of the omphalomesenteric duct.

The proper treatment of these sinuses is simply to remove the epithelium-lined tract.

BURNS OF THE EYE FROM LIME

To the Editor:—Please give the most approved method of treatment for the common and serious accident of getting lime in the eye. I have known several persons who have lost their eyesight completely from this accident, and I have been unable to find a book that even touches the treatment in a case of this kind.

F. E. P.

Answer.—This form of accident occurs quite frequently, and is apt to be followed by very grave results. The most serious and important sequel is the adherence of the lid to the globe (symblepharon) when there are two opposing raw surfaces. If the patient is seen immediately after the accident, the first step in the treatment is to drop into the conjunctival sac a few drops of a 1 per cent. solution of holocain, or of a 4 per cent. solution of cocain, in order to relieve the pain, which is usually intense, and then to remove all the remaining particles of lime as quickly as possible. The irrigating fluid should be a weak solution of vinegar, to neutralize the caustic effect of the lime. Subsequently cold applications should be applied to the closed lids, and a mild antiseptic, such as a 3 per cent. boric acid solution, dropped into the eye every two or three hours. If the burn is at all extensive, the conjunctival sac should be filled with an antiseptic ointment, which not only relieves the pain, but also prevents adhesion of the opposing surfaces. One of the best preparations for this purpose is a mercuric chlorid ointment which consists of mercuric chlorid (1 : 10,000) in petrolatum. Severe burns from lime, resulting in complete opacity of the cornea, have been treated—in addition to the usual local treatment—by subcutaneous injections of sodium cacodylate (from 3 to 7 grains at a dose) with perfect results. For the general practitioner who, in emergencies like this, should be prepared to treat conditions which ordinarily belong to the ophthalmic surgeon, a practical book is "The Commoner Diseases of the Eye," by Wood and Woodruff. It takes up only the diseases of the eye most frequently seen, and how to detect and treat them, without technical discussion.

REFERENCES ON DISEASE OF THE PITUITARY GLAND

To the Editor:—I want to find out all I can concerning the effect of disease of the pituitary gland. Does this gland have any effect on the growth of the body? I am particularly interested in the case of a boy, aged 17, who weighs 217 pounds, and is 6 feet 5 inches tall. The parents for three generations have been normal, and average 5 feet 8 inches in height.

J. T. Gray, M.D., Stillwater, Okla.

Answer.—The following is a list of references concerning disease of the pituitary gland:

Cushing, Harvey W.: Pituitary Body and Its Disorders, Philadelphia, J. B. Lippincott Company, 1912, $4.

Pfister, F.: Two Cases with Tumors Originating from Region of Hypophysis, *Wisconsin Med. Jour.*, May 1913.

Grinker, J.: Tumor of Hypophysis in Case of Acromegaly, The Journal, July 26, 1913, p. 235.

Luger, A.: Some Features of Roentgenographic Changes in Pituitary Diseases, The Journal, Sept. 6, 1913, p. 752.

Lewis, D. D., and Miller, J. L.: Relation of Hypophysis to Growth and Effect of Feeding Anterior and Posterior Lobe, *Arch. Int. Med.*, August, 1913; abstr., The Journal, Sept. 13, 1913, p. 896.

Barnabo, V.: Relations Between Hypophysis and Ovaries or Testicles, *Policlinico* (Surgical), August, 1913.

Frazier, C. H. and Lloyd, J. H.: A Case of Tumor of Hypophysis, Partially Removed by Transfrontal Method of Approach, The Journal, Nov. 1, 1913, p. 1626.

Taylor, A. L.: Case of Tumor of Pituitary Body, *Lancet*, London, Nov. 22, 1913.

Mamrot, A.: Hypophysis Tumor Syndrome in Young Man, *Arch. de méd. d. enf.*, December, 1913.

Lunghetti, B.: Tumor in Hypophysis Region, *Tumori*, February, 1914.

Finch, L. H.: Tumor of Hypophysis Cerebri, *New York State Jour. Med.*, March, 1914.

Gilmour, A.: Hypertrophic Pulmonary Osteo-Arthropathy (Marie's Disease), *Edinburgh Med. Jour.*, June, 1914.

Johnson, W.: Pathologic Investigation of Four Cases of Pituitary Tumor, *Lancet*, London, July 4, 1914.

Eltester: Acromegaly Plus Splanchnomegaly with Hypophysis Tumor in Male Cadaver of 32, *Med. Klin.*, Aug. 2, 1914.

Viscontini, C.: Infantilism, Fat Deposits and Genital Dystrophy with Tumor of Hypophysis, *Gazz. d. Osp.*, July 26, 1914; abstr., The Journal, Sept. 5, 1914, p. 898.

Bergeim, O.; Stewart, F. T., and Hawk, P. B.: Metabolism of Calcium, Magnesium, Sulphur, Phosphorus and Nitrogen in Acromegaly, *Jour. Exper. Med.*, September, 1914; abstr., The Journal, Sept. 26, 1914, p. 1135.

Halsted, T. H.: Intranasal Operation in Tumor of Hypophysis, *New York Med. Jour.*, Oct. 31, 1914.

Williams, T. A.: Case of Pituitary Disease Showing Both Acromegaly and Adiposis, *Washington Med. Ann.*, March, 1915.

DENTAL CLINICS

To the Editor:—In the *Washington Medical Annals*, January, 1915, there was published an article on school clinics, which I wrote, based on information gathered by the U. S. Bureau of Education. This article contains the names of all communities having school clinics, and shows that at the time when the statistics were gathered (up to October, 1914) forty-six communities had clinics for treating the teeth of schoolchildren; since that time Pittsburgh has also established school clinics for the eyes and teeth. This is in reply to the inquiry of R. B. (The Journal, May 22, 1915, p. 1782).

George H. Heitmuller, M.D., Washington, D. C.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 6. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, July 6. Sec., Dr. Harry C. DeVighne, Juneau.

ARIZONA: Phoenix, July 6-7. Sec., Dr. John Wix Thomas, Phoenix.

COLORADO: Denver, July 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, July 13. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven; Eclectic: New Haven, July 13. Sec., Dr. T. S. Hodge, 19 Main St., Torrington; Homeopathic: New Haven, July 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, July 13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

INDIANA: Indianapolis, July 13-15. Sec., Dr. W. T. Gott, 120 State House, Indianapolis.

MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, July 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEW HAMPSHIRE: Concord, July 6-7. Regent, Mr. H. C. Morrison, Concord.

NEW MEXICO: Santa Fe, July 12. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 29-July 2. Mr. Harlan H. Horner, Chief, Examination Division, State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 13. Sec., Dr. Ralph B. Smith, 502 Daniel Bldg., Tulsa.

OREGON: Portland, July 5. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

RHODE ISLAND: Providence, July 1. Sec., Dr. Gardner T. Swarts, State House, Providence.

SOUTH DAKOTA: Pierre, July 12. Sec., Dr. Park B. Jenkins, Waubay.

UTAH: Salt Lake City, July 5. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 1-3. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Seattle, July 6. Sec., Dr. G. N. Suttner, Baker Bldg., Walla Walla.

WISCONSIN: Milwaukee, June 29-July 1. Sec., Dr. J. M. Beffel, 3200 Clybourn St., Milwaukee.

WYOMING: Laramie, June 28-30. Sec., Dr. H. E. McCollum, Laramie.

Missouri March Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the oral and written examination held at St. Louis, March 22-24, 1915. The total number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 26, of whom 20 passed and 6 failed. Five candidates were granted reregistration licenses. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Arkansas	(1913)	84.2
Bennett Medical College	(1914)	85.6
College of Physicians and Surgeons, Chicago	(1893)	75
Rush Medical College	(1913) 90.7; (1914)	87.5, 85.2
Tufts College Medical School	(1905)	80.2
American Medical College	(1914)	77.9, 82.4, 90
St. Louis College of Phys. and Surgs.	(1908) 77.5; (1914)	75.8, 76.6
Washington University	(1904)	83.7
University and Bellevue Hospital Medical College	(1914)	88.8
Meharry Medical College	(1904)	75
University of West Tennessee	(1914)	76, 78.9, 82.1
Fort Worth School of Medicine	(1906)	75
FAILED		
American Medical College	(1914)	72.3
St. Louis College of Phys. and Surgs.	(1910) 69.1; (1914)	71.5
University of West Tennessee	(1914)	70.8, 73.2, 73.5

Colorado April Report

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the oral and written examination held at Denver, April 6, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 4, of whom 3 passed, including 1 osteopath, and 1 failed. Eleven candidates were licensed through reciprocity. One candidate was granted a reregistration license. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Louisville	(1914)	88.1
John A. Creighton Medical College	(1914)	81.6
FAILED		
Tokyo Charity Hosp. College, Japan*	(1911)	58.5

* Not included in the official list of foreign medical colleges prepared by the Council on Medical Education.

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Phys. and Surgs., Chicago	(1907)	Illinois
Northwestern University	(1912)	Illinois
Indiana University	(1913)	Indiana
Medical College of Indiana	(1901)	Indiana
University of Louisville	(1912)	Tennessee
University of Maryland	(1902)	Maryland
Harvard Medical College	(1898)	Mass.
Northwestern Medical College of St. Joseph	(1890)	Missouri
New York Homeopathic Medical College	(1881)	Missouri
Meharry Medical College	(1904)	Oklahoma
Memphis Hospital Medical College	(1898)	Mississippi

Idaho April Report

Dr. Charles A. Dettman, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Lewiston, April 6-7, 1915. The total number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 17, of whom 16 passed and 1 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Colorado	(1914)	83
College of Physicians and Surgeons, Chicago	(1912)	86
Illinois Medical College	(1905)	84
Rush Medical College	(1912)	87
University of Illinois	(1913)	80
Indiana University	(1909)	83
State University of Iowa, College of Medicine	(1897)	84
Southern Homeopathic Medical College	(1904)	79
St. Louis University	(1906)	75
Jefferson Medical College	(1896) 90; (1912)	87
Medico-Chirurgical College of Philadelphia	(1906)	81
College of Physicians and Surgeons, Memphis	(1910)	82
University of Vermont	(1908) 80; (1914)	84
Marquette University	(1913)	78
FAILED		
University of the South	(1909)	70

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Denver and Gross College of Medicine	(1908)	Utah

Minnesota April Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, April 6-8, 1915. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Rush Medical College	(1914)	87
Johns Hopkins University	(1914)	90
Boston University	(1909)	80
University of Minnesota	(1909)	88
Cornell University	(1913)	85
University of St. Joseph, Beirut	(1914)	82
FAILED		
Hamline University	(1904)	69

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Coll. of Phys. and Surgs., Chicago	(1907) S. Dakota; (1909)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago	(1908)	Illinois
Rush Medical College	(1908)	Illinois
Indiana Medical College	(1906)	Indiana
State Univ. of Iowa, Coll. of Homeo. Med.	(1908)	Iowa
University of Louisville	(1911)	N. Dakota
Hamline University	(1907)	N. Dakota
John A. Creighton Medical College	(1913)	Nebraska
Marquette University	(1914, 2)	Wisconsin
University of Toronto	(1906)	N. Dakota

Nevada May Report

Dr. S. L. Lee, secretary of the Nevada Board of Medical Examiners, reports the written examination held at Carson City, May 3-5, 1915. The total number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, all of whom passed, including 1 osteopath. Five candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
California Eclectic Medical College	(1913) 87.7; (1914)	83.3
Coll. of Phys. and Surgs., San Francisco	(1911) 77.3; (1914)	80.1
Tulane University of Louisiana	(1914)	95.3
Medico-Chirurgical College of Philadelphia	(1912)	86.4

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1913)	Nebraska
State University of Iowa College of Medicine	(1911)	Iowa
University of Michigan, Dept. of Med. and Surg.	(1903)	N. Carolina
St. Louis University	(1913)	Missouri
Omaha Medical College	(1896)	Nebraska

Book Notices

DIRECTIONS FOR A PRACTICAL COURSE IN CHEMICAL PHYSIOLOGY. By W. Cramer, Ph.D., D.Sc. Second Edition. Paper. Price, $1 net. Pp. 102. New York: Longmans, Green & Co., 1915.

This is one of the best guides for a general course in chemical physiology which we have seen. It is intended for the use of the medical student, and has just enough material to enable the worker to grasp the fundamental facts of physiologic chemistry, which are of such importance in the proper understanding of the clinical phenomena. The subject-matter is divided into three parts. Part I deals with animal and vegetable tissues and fluids; Part II treats of digestion, and Part III covers, in a general way, normal and pathologic metabolism. No attempt is made to present the subject in an exhaustive way, as this is necessary only for the specialist, for whom the book is not intended. The text, which is limited to experiments and deductions from these experiments, is presented in a clear and instructive manner. This work is recommended both to the teacher who may wish a brief and practical guide for his students, and to the worker who may desire to familiarize himself with the basic principles of chemical physiology.

PYELOGRAPHY (PYELO-URETEROGRAPHY). A Study of the Normal and Pathologic Anatomy of the Renal Pelvis and Ureter. By William F. Braasch, M.D. Cloth. Price, $5 net. Pp. 323, with 296 illustrations. Philadelphia: W. B. Saunders Company, 1915.

This is the first systematic presentation in any language of a method of diagnosis of kidney and ureteral affections, to which Voelker first called attention ten years ago. The author deplores the unjust condemnation of the method because of the deaths following its employment in a few cases. The majority of these ill effects were due to the use of too much force in injecting the solutions into the upper urinary tract. The book is based on the experience of the author in 2,000 cases, and the absence of any complication in this large number of pyelograms is the strongest argument for the gravity method which he employs. The numerous excellent roentgenograms show that pyelography is an almost indispensable diagnostic aid in renal and ureteral lesions. A careful study of the book is recommended to those interested in urologic as well as in general abdominal conditions.

EVOLUTION AND DISEASE. By J. T. C. Nash, Captain, R. A. M. C., T. F., S. S. Cloth. Price, $1.40 net. Pp. 73. New York: William Wood & Co., 1915.

This book consists of the Chadwick Public Lectures for 1913. The author traces in simple language the growth of our modern knowledge regarding the spread of disease, and shows the remedy in public education.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, JUNE 21-25.

American Ophthalmological Society, New London, Conn., July 6-7.
Montana State Medical Association, Bozeman, July 14-15.
Washington State Medical Association, Tacoma, July 20-22.

MISSOURI STATE MEDICAL ASSOCIATION

Fifty-Eighth Annual Meeting, held at St. Joseph, May 10-12, 1915

The President, DR. H. C. SHUTTEE, in the Chair

Pneumonia Treated with Rosenow and Hektoen's Antigen

DR. OLA PUTMAN, Marceline: Sixteen patients received the treatment without a fatality. The average time of crisis from the onset was four and one-quarter days.

DISCUSSION

DR. C. L. WOOLSEY, St. Joseph: I recently treated a patient, aged 62, who had developed the disease two days before he called for the doctor. His symptoms, therefore, were quite grave, including a bad mitral lesion. I gave him sensitized pneumococci, four injections, the last two containing 500 million germs. He made a speedy recovery.

Essential Hemorrhage from the Uterus

DR. C. H. WALLACE, St. Joseph: In essential hemorrhage from the uterus, the flow may occur without physical signs and symptoms, except the bleeding. This flow is never intramenstrual, generally is most excessive at the menstrual epoch, and may run from one period into another. The uterus may be slightly larger than normal, but perfectly mobile and with no other physical signs of disease. It occurs in the young or middle aged. The condition seems to be allied to uterine fibrosis. The hemorrhage may extend over a period of several years, the patient's general health being impaired from loss of blood.

DISCUSSION

DR. CARYL POTTER, St. Joseph: I do not believe in the conception of essential hemorrhage. There are several constitutional causes of hemorrhage. I should hesitate long before performing hysterectomy on a patient under 35 or before the menopause.

DR. JOHN J. SHELDON, Kansas City: Hysterectomy may be the only means of relief, but it is a great injury to the patient if done unnecessarily. The number of cases, however, demanding this extreme measure is exceedingly small.

DR. C. H. WALLACE, St. Joseph: In all my cases the ovary was left. Hysterectomy should be resorted to only after every other measure of relief has failed.

Renal Tuberculosis

DR. JAMES P. HENDERSON, Kansas City: Postmortem statistics show that from 50 to 60 per cent. of the cases are bilateral. It is of great importance to know whether one or both kidneys are involved and with what degree of destruction. Early tuberculosis affects but one kidney in from 90 to 95 per cent. of cases. It is my opinion that in cases of uremic anuria or acute suppression following surgical operation on one kidney, the other is found tuberculous in from 25 to 30 per cent., and that the destruction of the kidney is either primary or secondary in 95 per cent. of cases, and is secondary to tuberculosis elsewhere in the body. Tuberculosis of the bladder and ureter occurs in from 10 to 20 per cent., and is always secondary. In the acute miliary type there is no symptom to make the physician suspect the tuberculosis, all symptoms pointing to the systemic affection. In the caseating form there may be only constitutional symptoms, no local ones.

DISCUSSION

DR. E. G. MARK, Kansas City: No urine should be taken for diagnosis or accepted for that purpose except urine withdrawn by the catheter.

Dr. J. I. Byrne, St. Joseph: If persistent irritability of the bladder, frequent diurnal and nocturnal urination which does not respond to treatment, general systemic decline, blood pressure below normal, pus or blood in the urine, exists, you have reason to suspect renal tuberculosis.

Dr. J. P. Henderson, Kansas City: The majority of general practitioners can make the diagnosis without difficulty, but they fail in the treatment. Too often the bladder is held responsible, and treatment is given for a long period until the patient is completely "washed out."

Dr. C. R. Burford, St. Louis: Every general practitioner should be able to diagnose renal tuberculosis. There are two points to bear in mind: First, never examine voided urine for tubercle bacilli. Second, the initial complaint of the patient generally is of bladder irritability and lessened capacity of the bladder.

Unilateral Renal Hematuria

Dr. C. M. Nicholson, St. Louis, gave a description of the causes, varieties and pathology of renal hematuria with report of cases and the results of treatment.

DISCUSSION

Dr. W. J. Frick, Kansas City: With the various methods at our command, I believe we can usually make out the cause of this condition. The cystoscope is probably the most important of all the diagnostic methods we have, as it will show which kidney is bleeding and at the time tell us the condition of the other kidney. Next in importance is the Roentgen ray, by which we can ascertain whether the cause of the bleeding is a stone, which is the common cause for renal hemorrhage, or whether there is a tumor present, and sometimes we can obtain an idea of what kind of tumor it is if present. In tuberculosis of the kidney, the Roentgen ray may show caseation. Other methods are the microscopic examination of the urine and ureteral examination. Many cases present no symptoms except the hemorrhage, and these make up the so-called cases of essential hematuria, the diagnosis of which is made only by exploratory operation.

Dr. L. T. Dunaway, Eldorado Springs: I had a case of renal hematuria with which I worked for eighteen months. Finally I put the patient on nitric acid, 3 drops, three times a day, and in about four weeks she was well. Another woman had suffered for fourteen months, and was weak and anemic. Then she saw a boy fall from a table and was severely shocked. From that day on the hemorrhage ceased.

Dr. L. F. Body, St. Joseph: About twelve years ago, Steinwerk first discovered that renal hematuria was sometimes due to varix in the veins and papillae of the kidney. He curetted the bleeding points, and this was followed by relief of the condition. Others have made similar cures. Renal varix, however, is not the only cause of the trouble. Other pathologic conditions give rise to hemorrhage.

Dr. Jacob Geiger, St. Joseph: In the last few weeks I have operated in three cases which had been treated medically by competent physicians. I exposed the kidneys, but careful examination failed to disclose any pathologic condition. After splitting the kidneys and suturing with catgut, I replaced the organs, and all the patients are apparently well.

Dr. E. G. Mark, Kansas City: I have wondered whether the angioneurotic kidney is not responsible for the so-called essential hematuria. To have hemorrhage you must have some pathologic condition; yet we are sometimes confronted by cases in which we operate when no pathologic condition was found beforehand and no abnormal condition discovered later in the laboratory. The operation of splitting the kidney is unquestionably beneficial.

Dr. J. E. Dewey, Springfield: A man of 56 had been suffering from hematuria for three years. I was unable to find anything the matter with the kidney, so I removed it. Later searching showed a small concretion in one of the papillae which it would have been impossible for the man in his anemic condition to throw off. The second case was in a young man, an epileptic, who had been bleeding for fifteen months. We could find no lesion, either before or after nephrectomy. Perhaps these cases would come under the head of angioneurotic kidney.

Dr. C. M. Nicholson, St. Louis: Since in the majority of cases the symptom, whether or not we know the pathologic condition, is what we are treating, if it can be overcome by simply bisecting the kidney, this is better than to perform nephrectomy.

Factors of Safety in Goiter Operations

Dr. Vilray P. Blair, St. Louis: Refraining from radical operation during the height of crises, in the presence of grave degeneration, or functional disturbances of vital organs, is the most important working rule. A more potent factor, but rarely within the surgeon's control, would be to do necessary radical operations at an earlier period of the disease, before goiters reach the intensely toxic stage, before they cause degenerative changes in vital organs, and before they have become fixed in positions that render their removal excessively difficult and dangerous. Except in the presence of imminently grave obstruction, patients with simple goiters who are in poor condition should be nursed along until they are acceptable risks before thyroidectomy is undertaken. *Preliminary ligation of thyroid vessels is ordinarily the most* effective way of reducing the toxicity of exophthalmic goiters, and the postoperative behavior of the patient serves as a reliable indication as to how well a thyroidectomy would be tolerated. The avoidance of antiseptics and general anesthetics also reduces the liability of postoperative intoxication. Preservation of the integrity of important structures, the recurrent laryngeal nerves, parathyroids, the trachea and pharynx, is best assured by careful hemostasis during operation, the extraglandular ligation of the thyroid arteries and the preservation of the posterior capsule of the gland.

DISCUSSION

Dr. W. T. Coughlin, St. Louis: We do not have the selection of cases in our hands. Usually the patient is sent to us with the expectation that we will operate. If the profession were educated to the point where patients would be sent to the surgeon as soon as response to medical treatment fails, the surgeon's work in selected cases would be greatly simplified. If the goiter has developed very rapidly, it is just as well to let it alone. The most dangerous cases are the rapidly growing exophthalmic type. If the patient fails to benefit by rest in bed, surgery should not be undertaken.

Dr. V. P. Blair, St. Louis: There is one class of exophthalmic goiter which comes to the surgeon in which he will avoid operation if he regards the individual's good, unless forced to take the risk, that is, the goiter which has gradually led up to crisis, which has existed for a long time and shows evidence of degeneration, especially if mental symptoms are developing. Very interesting at present is the question of operating in those cases in which there is a suspicion of involvement of other ductless glands. Our present position is that, given a case of exophthalmic goiter, regardless of what other ductless glands may be involved, the removal of thyroid tissue will help the patient.

Dr. Roland Hill, St. Louis: One point which ought to be emphasized is that goiters giving rise to nervous symptoms, especially in women over 25, should be seen by the surgeon before marked degeneration occurs.

Gastro-Enterostomy

Dr. Herman E. Pearse, Kansas City: The average length of time that patients endure dyspepsia and various stomach symptoms due to gastric and duodenal ulcer before coming to the surgeon for cure by gastro-enterostomy is fifteen years. The symptoms that bring patients to successful operative cure are pain, loss of weight, vomiting and hemorrhage.

DISCUSSION

Dr. Willard Bartlett, St. Louis: We do not operate for ulcer. We do not know what causes an ulcer, nor does any surgical operation cure the operation per se, an ulcer always being a secondary condition. We operate for certain complications of ulcer, and obstruction is the one which most commonly brings the patient to operation. Perforation practically always demands immediate operation; we operate for small repeated hemorrhages which gradually deplete the patient; we operate for cancer on an ulcer basis and for "medical failures," although not using that term in any sense as a criticism, because from the very nature of the facts, many medical treatments are bound to fail. I do not believe that more than two fifths of all ulcers are surgical; three fifths are greatly benefited if not actually cured by such methods as are used by Sippy and others. Five forms of operation are applicable to ulcer, according to the case. Certain operators resect the ulcer-bearing area. Certain others resort to blocking the stomach at some point so that food cannot go over the ulcer area, and a drainage operation is done. Then there is excision of the ulcer, the fourth method, pyloroplasty, which is seldom used, and the fifth method, gastro-enterostomy, which is by far the most frequently used and the most useful of all operations for this condition.

A Question in Dealing with Abdominal Adhesions

Dr. Frank G. Nifong, Columbia: The formation of abdominal adhesions is one of Nature's methods of limiting the extension of the infection. The observation of adhesions in animals indicates that Nature provides those most exposed to infection by habits and environment with the greatest ability to form adhesions. Resistance to peritoneal infection seems to be in direct proportion to the animals's power to form adhesions. The kind of infection producing the inflammation has something to do with the readiness by which adhesions are formed. Late postoperative shock, so-called "secondary shock" is not truly shock, but is due to the overwhelming of the nerve centers by the sudden turning loose of a large dose of protein poison. Theory is not incompatible with Crile's kinetic theory, but the application of the principles of anoci-association is impracticable. Breaking down old adhesions, breastworks in the presence of leukocytosis, or active battle in war analogy, would seem to be treasonable. What is needed from a surgical standpoint is some index to the patient's resistance and the amount of operative procedure permissible.

DISCUSSION

Dr. H. E. Pearse, Kansas City: The presence of the retained shock is correctly attributed by Dr. Nifong to the blow of extensive internal dissection. But when the heart is struggling under a load of infection, it seems to me a poor plan to add 30 or 40 ounces to the circulation by intravenous transfusion. It is desirable to dilute the blood and dilute the toxemia. I have seen two patients die very promptly from this method of treatment. The water should be placed under the skin where Nature can make use of it if she wants to take it up, but it should not be put into the circulation. The one thing that has pulled these patients through for me whenever everything else failed is atropin.

Dr. W. T. Coughlin, St. Louis: I believe that delayed shock always indicates latent hemorrhage. The patient who dies from shock never reacts after the primary operation. Epinephrin is a very dangerous drug and should be used, if used at all, with extreme caution.

Tumors of the Carotid Body

Dr. C. W. Russell, Springfield, cited a case of ten years' standing, with a brief review of the anatomy, physiology and embryologic features so far as they have been investigated.

DISCUSSION

Dr. J. F. Binnie, Kansas City: About twenty years ago I operated for a tumor that I had diagnosed lymphangioma on the right side of the neck. In the course of the operation I changed my mind, and told the students present that I thought it was one of those cases then recently described in English literature as a potatolike tumor of the neck which had crystallized into tumors of the carotid. If I remember rightly, I dissected the tumor out without ligating the carotid vessels. The diagnosis of tumor of the carotid body was confirmed by Dr. Frank Hall. The subsequent history of the case was lost in the chaos which surrounded all city hospital records in Kansas City at that time.

Dr. C. W. Russell, Springfield: About two years following the removal of the tumor, there appeared on the opposite side of the neck a small, freely movable tumor, which was properly located and which I removed. It proved to be a hypertrophy of one of the lymph nodes.

ASSOCIATION OF AMERICAN PHYSICIANS

Thirtieth Annual Meeting, held at Washington, D. C., May 11-13, 1915

(Continued from page 2091)

A Method of Determining Total Plasma and Blood Volume

Drs. L. G. Rowntree, N. Keith, and J. T. Geraghty, Baltimore: The method consists of injecting into a vein a given quantity of nontoxic, nondialysable red dye; in three and six minutes, specimens of blood are taken and the degree of dilution of the dye determined. A standard solution is prepared by securing some blood before the dye is injected, and diluting an amount of dye equal to the dose to 4 per cent. of the body weight, using for the diluent 1 part serum and 3 parts salt solution. When the blood is taken after the injection of the dye, the serum is separated, diluted and compared with the standard solution: from this point the calculation is easy. The loss of the dye from the human circulation has been found to be only from 1 to 2 per cent. The dye cannot be found in the tissues, and it is not believed that it goes into the blood cells, either red or white. The average figures in normal individuals indicate that the blood volume should be 85 c.c. per kilogram, or about one twelfth the body weight. In essential hypertension and in diabetes, the blood volume has been found to be normal. In pregnancy there is a large increase in the blood mass which does not disappear until from seven to ten days after delivery. This would seem to be a physiologic preparation for hemorrhage.

Simple Method of Determining Variations in the H Ion Concentration in the Blood

Drs. L. G. Rowntree, McKim Marriott and R. L. Levy, Baltimore: The method consists of adding an indicator (phenolsulphonephthalein) to the dialysate of blood serum and comparing with a solution of known H ion concentration. The normal figures for H ion concentration are from 7.6 to 7.8. Many cases have been studied, among them twenty cases of acidosis, all of which have shown a concentration toward the acid side, as low as 7.0. In experimental acidosis, the readings went as low as 6.7, at which point the animals died. In alkalosis, the readings may go up to 8.0 or 8.1, when the animal dies. By this method the buffer values of the blood may be determined, and in acidosis the buffer values are very low. It is an easy method to study both acidosis and alkalosis from the blood side.

Case of Severe Anemia with Leg Ulcer and Remarkable Blood Findings

Drs. Jerome E. Cook, Jerome Meyer and George Dock, St. Louis: The case is one of severe anemia occurring in a young mulatto girl. There is a complication of recurring, indolent, leg ulcers. The red cells show the greatest degree of variation both in size and shape, giving the appearance as if many of the cells had been broken into fragments; but the most frequent abnormal type is a much elongated, curled red cell often more or less sickle shaped. Among the white cells an eosinophilia of varying and sometimes intense degree is the most marked feature. The other children in the family (two), are dead; both suffered from severe anemia. Two similar cases are recorded in the literature; both cases were in mulattos and both had a chronic type of leg ulcer.

Unusual Condition of the Blood in Primary Pernicious Anemia

Dr. N. E. Brill, New York: A woman, aged 43, mother of five children, nonsyphilitic, presented all the classical signs of a primary pernicious anemia, which began one year ago, insidiously, with gradually increasing sense of fatigue and later weakness with disturbed gastric symptoms, as vomiting for three weeks, and eructations of gas. Six weeks before coming under observation, weakness became extreme, and the skin pale and light yellow; visual power markedly diminished; cardiac palpitation, tinnitus aurium and vertigo were complained of; there had been no bleeding from the mucous membranes or into the skin. Six pounds were lost in weight during the year. Physical examination revealed a yellow skin, a slightly enlarged liver, a relatively larger spleen which could be felt over 3 c.c. below the costal border; tender tibiae and sternum, and a blood picture of high color-index (1.5) and the associated conditions of the cells indicating the presence of an anemia gravis. A transfusion of blood was done, followed in thirty-six hours by a splenectomy; following this an absence of the usual bone-marrow reaction was noted, though there was a gradual physical improvement in the patient, to the extent that she could walk again without the distress which had previously existed. In five weeks after her discharge from the hospital, there was a furibund recurrence in her symptoms which brought her back to the hospital in a worse condition than at any previous time. The blood then showed a tremendous loss of red cells, an increased activation of the leukoblastic and the erythroblastic tissues of the bone marrow, the circulating blood containing early myelocytic forms of cells, "myeloblasts or myelogones," of which a large number were phagocytic, containing one or more red cells in their cytoplasm, and a myelocytosis of 21 per cent., all accompanied by a hemoglobinemia and hemoglobinuria with the final blood picture of an acute myeloid leukanemia (von Leube) immediately before death. No necropsy could be obtained. The question arises, What relationship, if any, had the splenectomy on this unusual activation of the bone marrow?

Metabolism Studies Before and After Splenectomy in Congenital Hemolytic Jaundice

Drs. Samuel Goldschmidt, O. H. Perry Pepper and R. M. Pearce, Philadelphia: The patient had had a severe anemia from birth with the later usual history. Metabolism studies were made both before and after splenectomy. The blood picture after operation showed marked improvement. In general, the studies indicated a tendency to lose nitrogen before splenectomy and to retain nitrogen afterward; the operation seemed to restore the capacity for nitrogen utilization. There was a high elimination of uric acid before splenectomy, with a drop of 47 per cent. in uric acid output after the operation. The iron elimination before splenectomy was 50 per cent. above the intake; after operation the iron elimination was greatly reduced. There was also a reduction of 90 per cent. in the urobilin elimination in the feces. These figures seem to support the evidence of the real benefit of the operation. Removal of the spleen seems to remove the toxic agent or the source of it, and in addition the hemolytic agent is removed as well.

Plasmaphaeresis

Drs. J. J. Abel, B. B. Turner, E. K. Marshall, Jr., and P. D. Lamson, Baltimore: Among the many points of view from which one may study the minute structures of the blood, the relation of cells to plasma led to experiments which consist of the removal of the plasma of withdrawn blood and the return of the cells to the circulation, a process to which has been given the name plasmaphaeresis. The method is as follows: An animal is bled very freely, almost to fatal exsanguination, the blood caught in a solution of herudin to prevent coagulation, diluted to double its volume with Locke's solution, centrifugalized and the supernatant plasma discarded. The cells are now diluted to the original bulk of blood with Locke's solution, and restored to the circulation of the animal. This may be done repeatedly from time to time without injury to the animal. Blood pressure estimations showed that the low pressure of the exsanguinated state was well restored on the return of the fluid to the vessels. It was also found that leech extract is not toxic, at least to the extent in which we use it. But since the war, the supply of leeches has been interrupted and a manufactured herudin has been tried; this product is very toxic, quantities as small as 10 mg. being sufficient to kill animals with symptoms of great shock.

Preservation in Vitro of Living Erythrocytes

Drs. Peyton Rous and J. R. Turner, New York: There are several practical purposes involved in attempts to preserve intact mammalian red blood cells: for culture materials in the cultivation of plasmodia; for readily available indirect transfusion material, etc. Washed cells were first used, but were found to disintegrate very early. The addition of citrated plasma prevents this injury. Gelatin, in the proportion of 0.125 per cent. in Ringer's or salt solution will also protect the cells for a long time. Cells were tested by shaking to compare their fragility when thus treated with their fragility to hypotonic salt solution: there was no relation between the degrees of fragility, though bloods differ in their behavior in this regard. Human blood cells can be washed without injury. Cells are protected but not preserved by gelatin; the addition of glucose or saccharose, however, to gelatin Ringer's solution will preserve the cells for a long time. Cells that have been kept several weeks take up and surrender oxygen normally, do not clump or show morphologic change, and behave normally in the Wassermann reaction. Rabbits were exsanguinated, and preserved blood used to supplant that withdrawn; the animals were fully restored and behaved normally after the operation. Many tests corroborated this experience. Rabbit blood can be kept alive at least two weeks. Human blood can be kept for several weeks in dextrose-gelatin solution. Effete blood cells when introduced into the circulation can take up and give off hemoglobin, but they quickly disappear from the circulation; but when the animals are treated by the introduction of blood preserved in the manner described, no changes can be found afterward, even in the spleen.

Clinical Studies in Blood Transfusion

Drs. E. Libman and R. Ottenberg, New York: In simple hemorrhage, the results of transfusion were uniformly good, especially in hemorrhage of gastric and duodenal ulcer. Transfusions made during the progress of the hemorrhage acted equally well as when made after the accident, and seemed to encourage spontaneous arrest of the effusion. In six cases of dysentery, transfusion was followed by marked improvement. In seven cases of typhoid hemorrhage, nine transfusions were done with two recoveries. Transfusion is useful in operative work, both before and after operation; but it is of no help in surgical shock. In purpura hemorrhagica, transfusion was done twelve times in nine cases; six patients recovered, the two deaths being in cases occurring shortly after pregnancy. In this disease, transfusion appears to have a direct curative value. For hemophiliacs, a donor should be picked in advance for possible needs. For prophylactic purposes, a small transfusion every few months may be useful. Transfusion is much more helpful than the injection of serum. For the treatment of postoperative hemorrhage in obstructive jaundice, transfusion was not of material benefit. The suggestion was made that in this condition there should be a preliminary bleeding with a large transfusion from several donors. In pernicious anemia and leukemia, the results were not uniformly good. In twenty-five cases of pernicious anemia, fourteen showed for a time progressive improvement; eight of these patients are alive at the present time, but they all present evidences of blood trouble. In eleven cases, transfusion was of no avail; two cases were also splenectomized without improvement. In one case, there were four transfusions, followed later by splenectomy; a remission then took place. Transfusion does more than anything else to abate the blood symptoms. It is important to try several donors when no improvement follows one or more transfusions from a single donor.

The effect of transfusion on the symptoms of pernicious anemia may be summarized thus: The appetite improves, the mental symptoms grow better, the glossitis clears up, and the blood picture improves; but the spinal cord symptoms do not improve. There is fever in 50 per cent. of the cases;

some become afebrile after transfusion. The fever may be due to toxic causes or to the anemia. In this disease, splenectomy is advisable; if no remission occurs after the operation, then transfusion should be done; or if remission does not follow transfusion, then splenectomy should be resorted to. We may thus determine the relative values of the two methods of treatment. In leukemia, there was some improvement following transfusion in a number of cases; but it was not lasting. In acute infections, transfusion has no very large field of application. Patients may be helped along by it at times, but the best results are to be had in long-continued subacute infections. In endocarditis with retention of infection, transfusion does good only to the extent of prolonging life for a time. The Unger method of direct transfusion and the Weil citrate indirect method are the best, and will supersede all others.

Discussion on Blood and Blood Diseases

Dr. R. C. Cabot, Boston: In six cases of pernicious anemia, splenectomy has been done in the past four months. No marked improvement could be noted in the first two or three weeks after splenectomy; then there was a rapid rise in the cell count, more rapid than that which may be noted in a spontaneous remission or after treatment by transfusion or salvarsan. All of the cases have gone above 4,000,000 in the cell count. Four out of the six patients are now at work, whereas before the operation they were entirely helpless. The blood still shows very definite changes.

Dr. Joseph L. Miller, Chicago: Removal of the spleen does not remove the hemolytic agent; it seems to stimulate resistance of the cells and the bone marrow, so that the blood recovers somewhat in spite of the hemolytic agent. I recall a case in which there were progressively increasing spinal cord lesions after splenectomy, thus further indicating the retention of the hemolytic agent.

Dr. R. Weil, New York: Concerning the toxicity of sodium citrate, I used enough to keep blood fluid and in some cases to preserve such blood as long as two weeks, and then to reintroduce this blood into the circulation of animals without toxic effect. In man, 5 gm. of the citrate may be injected without producing any symptoms. The use of sodium citrate and of citrated serum has been found to have the curious effect not of increasing the coagulation time but of decreasing it. This observation may play an important rôle in the treatment of hemorrhagic diseases.

Dr. Theodore C. Janeway, Baltimore: My work on the arteries has shown such a lethal effect of sodium citrate on the arterial walls that it suggests caution in the use of citrated blood. Perhaps the citrate used in a transfusion is too dilute to do any harm. The results of transfusion in cases of pernicious anemia coming under my observation have been even better than those reported by Dr. Libman.

Dr. J. J. Abel, Baltimore: I have observed relaxation of the intestinal strip in citrate solution, but this is not comparable to work in vivo.

Dr. R. Weil, New York: I have injected as much as 1,400 c.c. citrated blood without producing symptoms, and I have given 5 gm. sodium citrate in water a number of times without untoward effect.

Dr. Peyton Rous, New York: It is possible to use kept corpuscles without citrate by sedimenting and pipeting off the plasma. In using preserved blood, it must be remembered that dextrose delays clotting.

Dr. W. S. Thayer, Baltimore: I have a patient who has a grave secondary anemia with a leukocytosis of 20,000. There is an increased resistance to hypotonic salt solution and a great increase of vitally staining cells.

Dr. E. Libman, New York: Dr. Lewis has been working with herudin and has observed the same toxicity of the manufactured article to which Dr. Abel has called attention. I would not be in favor of separating cells from plasma in transfusion work as suggested by Dr. Rous. I have seen one case in which mild diarrhea followed the transfusion of citrated blood. The symptom was trifling and its significance doubtful.

Dr. N. E. Brill, New York: Metabolism studies in my case of pernicious anemia showed no difference in iron elimination before and after splenectomy. With better protection of cells and greater production after splenectomy, it stands to reason that there should be a retention of blood. Lecithin is known to protect blood cells, but in my case there was no increase of lipoid in the blood after splenectomy.

Treatment of Tetanus by Antitoxin Given Intraspinally

Dr. Matthias Nicoll, Jr., New York: Experiments were made to ascertain the value of intrathecal administration of antitoxin. Guinea-pigs were given twice the minimum lethal dose of tetanus toxin; they died in three days. Pigs treated thus were given antitoxin by injection into the heart cavity; they died in from five to eight days. Tetanic pigs treated by injecting antitoxin into the sciatic nerves did no better. But pigs treated by injecting one twentieth the dose of antitoxin used in the other animals into the spinal canal recovered. Several pigs were allowed to grow so tetanic that they were twisted into grotesque shapes; out of six treated by intraspinal injections of antitoxin, three recovered. Twenty human patients were treated with intrathecal injections of antitoxin, and sixteen out of the twenty recovered. The method of treatment recommended is to give from 3,000 to 5,000 units into the spinal canal, diluting the serum to from 10 to 20 c.c. to make it thin and easily diffusible; posture is not required to assist diffusion. In addition, 10,000 units should be given intravenously. The intraspinal injection should be repeated in twenty-four hours and if necessary, the intravenous injection should be repeated also. By this method, the mortality of tetanus has been reduced to 20 per cent.

(To be continued)

AMERICAN PEDIATRIC SOCIETY

Twenty-Seventh Annual Meeting, held at Lakewood, N. J., May 24-26, 1915

(Concluded from page 2094)

Allergy to Common Foods

Dr. Oscar M. Schloss, New York: A number of cases of eczema and bronchial asthma prove to be due to food allergy. A satisfactory result can be obtained in some of these cases, but not in all, because there is a lack of proper substitute foods, and it is difficult to secure the reaction in all cases. The guinea-pigs used in these experiments were divided into two groups, one of which was egg fed. After thirty-five days, they were found anaphylactic. Of the others, which were fed on egg for several months, none had developed immunity. The treatment should consist either in the administration of gradually increasing amounts of the toxic protein, or in eliminating the offending protein from the diet.

DISCUSSION

Dr. John Howland, Baltimore: These children are sensitive to so many proteins that it is hard to give them a food on which they can be nourished. The subcutaneous test is more sensitive than the cutaneous, but more difficult to interpret. This differs somewhat from anaphylactic shock, in that it is impossible to produce passive sensitization in animals or to obtain precipitins from their blood.

Dr. Fritz B. Talbot, Boston: The longest absolute cure I have had is three years. In about 60 per cent. of a large number of cases of asthma that I have seen recently, I have found a positive skin test to some food. Egg was the most common offending article.

Dr. S. McC. Hamill, Philadelphia: In some investigations which I have been making, I have been struck with the number of times I have obtained the reaction in children with no very definite manifestation of anaphylaxis, but with gastro-intestinal trouble accompanied with recurrent attacks of diarrhea.

Dr. Royal S. Haynes, New York: I have treated several cases of asthma in which the child was sensitive to egg, and in which it was also necessary to limit the amount of chicken. If the child ate a little egg or chicken, but not sufficient to develop asthma, it would get a return of eczema.

Dr. Rowland G. Freeman, New York: Many children have been injured by the assumption that they have an idiosyncrasy to cow's milk. I have found none that I could not give it to, if I began with a small amount and gradually increased it to a normal quantity.

Dr. Isaac A. Abt, Chicago: While some children take care of these foods badly, others can take them without any toxic response; and the question is whether the result is due to an abnormality in the food or in the child. If in the latter, have we any means of classifying this idiosyncrasy on the part of the children?

Adaptation of an Artificial Food to Human Milk

Drs. H. J. Gerstenberger, H. D. Haskins, H. H. McGregor and H. O. Ruh, Cleveland: There is a means of eliminating the low volatile fatty acids, for the homogenizer makes it possible to mix this fat with other constituents of the food in the form in which it exists in breast milk, and also to add any other thing that further investigation may develop, thus affording a practical method of getting much closer to securing for the great bulk of children in the cities a food which needs no dilution and can be fed to a young infant, as well as to an older one. The bacterial content is very low. The food is cheap, and will probably prove of great value to the general practitioner.

Homogenized Olive Oil-Fat-Free Milk Mixtures in Cases of Difficult Feeding

Dr. Maynard Ladd, Boston: Foreign milk usually contains a much higher percentage of fat than foods given in its place. This fact led to experimentation with other foods. By homogenizing, we are able, in cases of intolerance to cow's fat, to combine these foods with skimmed milk and produce a perfect emulsion. We can combine chemically pure casein with pure oils and pure sugars. My experiments thus far justify me in believing that in this way a food can be obtained which can be given with great improvement to the health of the patients. Olive oil combined with fat-free milk might be of great value, for olive oil costs only about a fourth as much as cream. I have had success with this method of feeding in one or two very difficult cases, but my experience has not yet been sufficient to warrant me in drawing conclusions.

DISCUSSION

Dr. B. Raymond Hoobler, New York: There are two types of fats: those which come from glandular tissue and those which are not glandular in type. Animals are not sufficiently or properly nourished on the latter kind of fats, but when glandular fats are added to their food, nutrition takes place. An increase in weight is not sufficient evidence of true nutrition; the animals must be able to produce normal offspring. Animals fed on nonglandular fat are unable to do this. We should inquire whether the foods suggested are capable of fulfilling this standard of nourishment.

Composition of Woman's Milk

Drs. L. Emmett Holt, Angelia Courtney and Helen M. Fales, New York: After the first month there are no practical differences in the composition of the milk until the end period. The fat is highest in the transition period. In the late period, it was as high as in the mature period, except in one case. In only one case was the sugar less than 7 per cent., and in over half the cases it was over 8 per cent. It showed a diminution in quantity up to the late period. The protein did not differ much from the amount found in the early period. The milk differed but little in composition at the various ages. The total ash is practically the same in all. The ratio between the protein and the ash in human milk is practically the same as in cow's milk in the mature period, 1:5. In cow's milk, in ordinary dilutions, we are giving more mineral than the child really needs.

DISCUSSION

Dr. Henry J. Gerstenberger, Cleveland: What were the iron determinations?

Dr. Thomas S. Southworth, New York: One of the interesting things is the high fat in the transition period. The bad effects of this high fat content of the mother's milk at this stage can be overcome by diluting it with some alkaline solution. The fact that the fat is normally high at this time and then begins to decrease shows that Nature comes to our aid by lowering the amount of fat.

Dr. L. Emmett Holt, New York: The percentage of iron found by other observers is 1.7 mg. in 1,000 c.c. of milk.

Sugar in Infant Feeding

Drs. Charles H. Dunn, Boston, and **Langley Porter**, San Francisco: Eighteen patients were observed, 108 samples of urine tested, and 235 tests made. Twelve of the eighteen cases showed reducing bodies on some tests. Eight showed a loss in reducing power after shaking the picric acid. The majority were difficult feeding cases. None showed marked intolerance to any of the food elements. The effect of increased sugar on the weight of the babies was surprising. They gained rapidly at first, but less rapidly after sugar intolerance developed. It is our belief that the idea of sugar intoxication has been so exaggerated as to keep us from trying the effect of large amounts of carbohydrates for babies who show an inability to take a sufficient amount of food. Some children have been much benefited by pushing the amount of sugar temporarily above the ordinary limits.

DISCUSSION

Dr. Oscar M. Schloss, New York: Some results that we obtained about a year ago did not accord with those cited. In many instances we found that the infant's urine would reduce copper, and occasionally bismuth. In a number of instances we were able to determine that the reducing substance was sugar. This sugar, however, was not lactose. It was a monosaccharid, sometimes dextrose and sometimes galactose.

Dr. Langley Porter, San Francisco: There is no necessary antagonism between these findings and those in our paper; these were cases merely of disturbance, and not of intoxication. The interesting thing was the presence of reducing bodies other than sugar in such a large proportion of the urines of infants.

Dr. I. A. Abt, Chicago: The idea of Finkelstein and his school is that sugar or any other food element finds its way into the circulation because there is a damaged intestinal wall. It is not damaged by the sugar or any other food, but by bacterial action or the toxic product resulting from bacterial action. Food intolerance merely means that the food breaks through the intestinal barrier.

Dr. L. Emmett Holt, New York: What about the permanence of the gain in weight in these children? A child can have intolerance for a small amount of sugar and tolerance for a large amount. We have seen so many symptoms in children getting small amounts that we have hesitated to give a larger amount of sugar.

Dr. Henry Koplik, New York: There is a limitation to the amount of sugar we can administer to these children. If you persist in administering this large amount, the children gain for a while, then stand still, and finally lose.

Dr. Henry J. Gerstenberger, Cleveland: A high protein content will allow of a much higher percentage of sugar, and a low one most likely limits the amount.

Dr. DeWitt H. Sherman, Buffalo: Some studies made by us seem to show that lactose stimulates motor function in the stomach more than either cane sugar or malt sugar. That, however, is probably not true, for the reason that the secretion following the ingestion of lactose was no greater than after the other two. We concluded that cane sugar stimulates the gastric secretion a little more than lactose, but that dextromaltose stimulates the secretion twice as much as lactose.

Dr. J. P. Crozer Griffith, Philadelphia: Last winter I tried feeding infants with foods rich in carbohydrates, and found they did very well, being able to tolerate from 10 to 13 per cent. perfectly.

Dr. Charles H. Dunn, Boston: The problem we are studying is the possible damage produced by sugar. In this series of cases, the gain in weight was maintained, but the sugar was immediately cut down when symptoms of intolerance developed. I believe that the chief cause of those severe cases in which fat cannot be taken is prolonged overfeeding with sugar. The amount of protein given was 2.5 per cent. We found that many specimens of lactose contain gas bacillus spores and other things that tend to lead to trouble and make us draw wrong conclusions.

Indications for Treatment of Severe Diarrhea in Infancy

Drs. John Howland and W. McKim Marriott, Baltimore: We tested the alveolar air in infants, and found that the carbon dioxid tension in such cases is lower than in health, especially if dyspnea is present. This low tension is an evidence of acidosis. Giving alkalies in large quantities causes the carbon dioxid tension to rise and the dyspnea to disappear. Cathartics should not be given unless there is distention of the abdomen accompanied by fever. Opium should be administered in sufficient quantity to prevent more than two or three stools a day, and alkali (preferably sodium) given, with water, in sufficient quantity and often enough to cause the dyspnea to disappear and to overcome the diarrhea. The condition is not a food intoxication, but the absence of a substance necessary to life.

DISCUSSION

Dr. Henry Koplik, New York: Opium is a dangerous drug in these cases, sending the children into a deeper stage of intoxication. Why attempt to stop peristalsis? Diarrhea is a means by which Nature eliminates a certain amount of poison.

Dr. Oscar M. Schloss, New York: In some work which I did during the past year, I obtained results exactly comparable to those of Dr. Howland. In cases of severe intoxication and dyspnea, there was a marked lowering of the carbon dioxid in the blood.

Dr. Henry J. Gerstenberger, Cleveland: I should like to know the dose of alkali which Dr. Howland gives.

Dr. Charles G. Kerley, New York: Opium is one of the best drugs to use in intestinal diseases, but it must be used carefully. Drainage may be so excessive as to exhaust the patient.

Dr. I. A. Abt, Chicago: It is important to give these children the proper kind of food to prevent acidosis, as well as to administer alkali to correct this condition.

Dr. A. D. Blackader, Montreal: We can check peristalsis entirely with a large dose of opium, while, with a smaller one, we can check it just enough to give the digestive fluids a chance to work in the intestine. In cases of normal children, even when a cathartic is given, the stools contain much undigested food. Small doses of opium, repeated often enough to prevent this extreme waste, have never caused any disastrous results, in my experience.

Dr. Julius P. Sedgwick, Minneapolis: Study of the creatin-creatinin excretion in these cases of acidosis might aid in clearing up this problem.

Dr. John Lovett Morse, Boston: If there is something in the bowel that needs to come out, one should give a cathartic; but if everything doing harm is out, and the diarrhea is merely draining the tissues of water and salts, we do harm with a cathartic and good with opium. It is advisable to give alkalies before these severe symptoms develop.

Dr. Fritz B. Talbot, Boston: In studying a large number of new-born infants, we found that the respiratory quotient was very low on the second or third day of life. It was such a low respiratory quotient as we get with acidosis or diabetes. We have not, however, found acetone bodies in the urine.

Dr. John Howland, Baltimore: I dislike the term "acidosis," because it has been applied so loosely to a number of different diseases in which physiologic acidosis is not present. The fact that a small number of bodies of the acetone series can be found in the urine does not prove that acidosis is present. It is only when the protective mechanism of the body is called into play that we can speak of acidosis. If the infant's abdomen is distended, the intestines being full of putrefying substances, and the baby has high fever, opium should not be given. These children do not, however, come in that condition, but with a retracted abdomen, the intestines being empty. It is dangerous to let them have eight or ten large stools a day. I give a few drops of opium after each loose stool. It is surprising how much they can take without influencing their stupor in the slightest degree. We usually give 4 gm. of alkali at a time, subcutaneously, 5 or 6 gm. intravenously, and 3 or 4 gm. by mouth. I believe protein milk, rather concentrated, and in small amount, to be the best food for these patients. The appetite is almost always lost, and many infants vomit everything that is ingested.

Reducing Substance in Spinal Fluid

Drs. Oscar M. Schloss and Louis C. Schroeder, New York: The reducing substance in spinal fluid is a fermentable, dextrorotary sugar, probably dextrose. In infants free from meningeal disease, the spinal fluid sugar ranges from 0.05 to 0.134 per cent. Approximately the same figures would obtain in cases of meningismus. The spinal fluid sugar is normal. In epidemic cerebrospinal meningitis, and suppurative forms of meningitis, the sugar is greatly reduced or absent. A large proportion of the cases of tuberculous meningitis show a decrease in the sugar of the spinal fluid. An increase of sugar alone is of diagnostic importance in this disease. The reducing substance was not found decreased in cases of idiocy, cerebrospinal syphilis or anterior poliomyelitis.

DISCUSSION

Dr. Alfred Hand, Jr., Philadelphia: I have examined the spinal fluid in many cases, and have found the absence of sugar in suppurative meningitis, and its presence in practically every case of tuberculous meningitis. I have come to depend on this fact in making the differential diagnosis. I believe that the ferment produced by the polymorphonuclear leukocytes causes the disappearance of the sugar in epidemic and suppurative forms of meningitis.

Meningitis in the Newborn

Dr. Charles Herrman, New York: The infection may take place through the placental circulation, but this is probably rare. It may also occur, in cases of difficult labor, through premature respiration on the part of the infant, resulting in the swallowing or aspiration of contaminated amniotic fluid. Infection may likewise take place at birth, through an injury to the skull; or after birth, through the eyes, ears, nose, gastro-intestinal tract, umbilicus or genitalia. From the fact that the *Bacterium coli* is the most common causative agent in such cases, it seems probable that the infection takes place through contaminated water in the bathing tub.

DISCUSSION

Dr. Henry Koplik, New York: I have seen several cases of meningitis in the new-born. Babies are considered as new-born in hospitals up to the third month. Most cases are usually of streptococcic origin. One of the cases I saw was a colon meningitis; another was due to a bacillus similar to the typhoid.

Dr. L. E. LaFetra, New York: The symptoms of meningitis are not evident in these cases, the infants showing great depression or symptoms of sepsis. They do not have very high temperatures. Various organisms are found.

A Case of Amaurotic Family Idiocy in One of Twins

Dr. Charles Herrman, New York: Alcohol and syphilis have been considered factors in the etiology of this disease, but it is difficult to see how any condition in the mother could affect only one of twins. These children received breast milk for only two weeks, and it could hardly be considered to be toxic for only one child. The theory of arrest of development must also be given up, because the brain of the amaurotic infant is normal morphologically at birth and for some time afterward. Then there gradually occurs a degeneration of all the ganglion cells and loss of function. The tendency to degeneration must be born with the child and develop subsequently. Some endogenous factor comes in and affects these children, although it does not do so in one born without this weakness.

Macewen's Sign: Analysis of Anatomic Conditions which Enter Into the Production of this Sign; Its Value in Diagnosticating Changes in Intracranial Pressure

Dr. Herbert B. Wilcox, New York: A positive Macewen's sign exists when variation from the normal note is found. It consists in a relative change, rather than in a definite condition common to all diseased crania. The sign is better elicited by the stethoscope than by the unaided ear. Increased clearness of sound when percussion is made over the posterior portion of the skull, rather than near the stethoscope, is diagnostic. The sign uniformly accompanies conditions of increased intracranial tension, and is not found unless the causative factor exists. It is equally applicable to infants and to older children.

DISCUSSION

Dr. L. E. LaFetra, New York City: To me, the pitch of the sound seems of more value than its loudness. The pitch becomes higher as one approaches the bell of the stethoscope. I think the sign will prove of value in cases that are not meningitis, but meningismus, or some other type of spinal condition with increased spinal fluid.

Dr. Henry Koplik, New York: This is the most useful sign we have of beginning tuberculous meningitis, ordinary meningitis and serous meningitis due to otitis media. I find the greatest difficulty in applying the sign in the case of children who have had rickets. It is difficult in them to tell how much the sign is due to the slight hydrocephalus resulting from the old rickets, and how much to the new disease.

Epidemiology of Pneumonias in Children

Drs. Godfrey R. Pisek and M. C. Pease, New York: From a study of a thousand cases, we have established a mortality rate for pneumonia of 34.3 per cent. Bronchopneumonia is preeminently a disease of the first two years of life, and is relatively uncommon after the third year. Lobar pneumonia is the type present after that period. Omitting those cases which are frankly secondary to some other condition or which occur as a terminal infection, the infection which is the etiologic factor of primary lobar pneumonia is always the pneumococcus; bronchopneumonia may be due to a number of organisms. If pneumococci are present in bronchopneumonia, they are usually one of a group of organisms, or are of low virulence. The pneumonia should be treated with a serum or vaccine derived from organisms belonging to the group causing the infection, or the therapy will be useless.

DISCUSSION

Dr. Julius P. Sedgwick, Minneapolis: At Minneapolis, in hospital, as well as in private practice, the mortality from lobar pneumonia in infants and young children is almost nothing.

Dr. A. D. Blackader, Montreal: A high mortality in lobar pneumonia does not represent the experience we have in Montreal.

Unusual Case of Congenital Heart Disease

Dr. John Lovett Morse, Boston: A child of 4 years had a severe attack. No murmur could be heard by any one, however, except the house doctor. Nov. 30, 1914, he came to the hospital with the history of having been taken suddenly ill the night before. No murmurs or thrill could be heard. On the following day he was not examined, but the day after, Dr. Howland discovered a murmur, which, however, could not be heard by others. December 4, he developed a diastolic murmur, and later, a systolic murmur. This was followed by a double pneumonia. Within the next few weeks, the murmur diminished, but did not disappear. He then died suddenly, presumably from embolism. Only a partial necropsy was obtained, which showed complete atresia of the pulmonary artery, congenital defect of the intraventricular septum, vegetative endocarditis, an open ductus arteriosus, and atrophy of the right ventricle. Only five other cases like this are said to be on record.

DISCUSSION

Dr. Alfred Hand, Jr., Philadelphia: In the few instances in which I have seen such a defect of the septum, the lesion has been in the muscular, rather than the membranous part.

Case of Myelogenous Leukemia in an Infant Nine Months Old

Dr. J. H. Mason, Baltimore: The patient was a girl, aged 9 months. The striking feature in the case, besides the age of the patient, was the rapid course of the disease, less than three weeks. There was no enlargement of the lymph nodes or spleen, and no record of hemorrhage or of necrosis of the mucous membrane. The symptoms apparently were entirely referable to the gastro-intestinal tract. The great number of leukocytes in the circulating blood (200,000 per cubic millimeter) is to be accounted for by a possible peripheral infection. The atypical granulations seen with neutrophilic myelocytes as well as in the presence of eosinophilic and basophilic varieties gave evidence that it was a true primary disease of the bone-forming organs.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

June, XXXVII, No. 3, pp. 453-517

1 *Active Principles of Different Organs, as Shown in Kymograph Tracings. G. G. Fawcett, J. Rogers, J. M. Rahe and S. P. Beebe, Ithaca, N. Y.
2 *Rate of Oxidation of Enzymes and Their Corresponding Pro-Enzymes. W. E. Burge and E. L. Burge, Chicago.
3 *Effects of Epinephrin Infusion on Vasomotor Irritability. R. G. Hoskins and W. N. Rowley, Chicago.
4 *Distribution of Gastrin in Body. R. W. Keeton and F. C. Koch, Chicago.
5 Researches on Exchange of Energy in Live Animal Tissues. I. Microcalorimetry Applied to Animal Tissues. A. O. de Almeida, Rio de Janeiro.

1. **Active Principles of Organs.**—All the different organs from which the authors prepared extracts, with the exception of the suprarenal, contain a depressor substance within the "residue" portion, which in each case varies in its action directly as its nitrogen content (calculated in terms of protein). The depressor effect of the thyroid "residue" is said to be dependent on a substance containing iodin. When standardized according to its nitrogen content each "residue" produces characteristically different effects in the kymograph tracings. This depressor agent cannot be cholin because a dosage of pure cholin which is comparable to that of a thyroid "residue," for example, produces no effect. The active portion of these "residues" is apparently not the same as Popielski's vasodilatin, which is prepared in a totally different way and gives different reactions.

2. **Rate of Oxidation of Enzymes.**—The Burges summarize their findings as follows: Trypsin is more easily oxidized than trypsinogen. Pepsin is more easily oxidized than pepsinogen. The fact that trypsin and pepsin are relatively easy to oxidize makes it possible for the mucosa of the stomach and intestine to protect itself from digestion by means of its oxidative processes. The fact that trypsinogen and pepsinogen are relatively difficult to oxidize prevents these substances from being oxidized in the cells of the pancreas and of the gastric mucosa during the process of secretion.

3. **Epinephrin and Vasomotor Irritability.**—In forty-four anesthetized dogs the effects of epinephrin infusion on the

irritability of the vasomotor mechanism was investigated by Hoskins and Rowley. The vasomotor mechanism was stimulated by faradization of the sciatic and splanchnic nerves, and by injections of nicotin, epinephrin and pituitary extract, before, during and after intravenous infusion with epinephrin. No concentration of epinephrin gave satisfactory evidence of augmenting vasomotor irritability, or facilitating the transmission of vasomotor impulses. In most cases the infusion lessened the vasomotor irritability—sometimes to a marked degree. The animal's own suprarenal glands played no significant part in the results. The irritability of both the pressor and depressor mechanisms was decreased. The authors conclude that the depression was probably both central and peripheral, hence circulating epinephrin is probably not a factor in the ordinary functioning of the animal economy.

4. **Distribution of Gastrin in Body.**—Evaporation of an acid extract from various tissues leaves a residue, soluble with difficulty, in 95 to 98 per cent. alcohol, which manifests varying degrees of gastrin activity. The gastrin is uniformly distributed throughout the stomach mucosa, is found in much smaller concentrations in the duodenum, and its presence can just be demonstrated in the esophagus. Preparations of pancreas, submaxillary gland, smooth muscle and striated muscle are negative. Gastrin intramuscular doses of 1 c.c. (corresponding to 4 to 5 gm. of fresh tissue) cause a fall in blood pressure lasting over four to five minutes, a secretion lasting over one and one-half hours with a maximum between thirty and forty-five minutes following the injection. The authors believe that gastrin causes a true gastric secretion rather than a simple vasodilator response, that it is of a different chemical nature from pancreatic secretin, and that it is a specific substance.

Bulletin of Johns Hopkins Hospital, Baltimore

June, XXVI, No. 292, pp. 211-240

6 *Accurate Clinical Study of Blood Sugar. S. Strouse, I. F. Stein and A. Wiseley, Chicago.
7 Chorio-Epithelioma of Testicle. J. V. Cooke, San Francisco.
8 Mithridatium and Theriac, Most Famous Remedies of Old Medicine. G. W. Corner, Baltimore.
9 Is Pathologic Metabolism in Parental Organism Responsible for Defective and Monstrous Development of Offspring? E. I. Werber, Princeton, N. J.
10 Medicine in China. R. M. Pearce, Philadelphia.
11 Case of Abscess of Liver, Due to Streptothrix. A. Bloomfield and S. Bayne-Jones, Baltimore.

6. **Study of Blood Sugar.**—The Kowarsky method of determining blood sugar, as modified by the authors, affords an efficient and accurate means of studying blood sugar in man. The normal blood sugar, as shown by a study of sixty-one determinations, varies from 0.04 to 0.12 per cent. (in one instance 0.14 per cent.) with an average of 0.084 per cent. These variations are due to the varying factors in the ordinary day of any normal individual—especially to the diet factor. Carbohydrate in the diet raises the blood sugar. The blood sugar of a normal man describes a curve reaching its lowest limits before breakfast and before dinner, and invariably showing a rise one hour after meals. The authors emphasize the fact that blood sugar determinations, to be of any value, must be performed before and after an ordinary meal containing carbohydrate.

Journal of Experimental Medicine, Lancaster, Pa.

June, XXI, No. 6, pp. 525-652

12 *Study of Barlow's Disease Experimentally Produced in Fetal and New-Born Guinea-Pigs. A. Ingier, Christiana, Norway.
13 *Pure Cultivation in Vivo of Vaccine Virus Free from Bacteria. H. Noguchi, New York.
14 *Transplantation of Tumors to Foreign Species. C. Funk.
15 *Effect of Arsenic Compounds of Rous Chicken Sarcoma. C. Funk.
16 *Antibody Formation Against Treponema Pallidum—Agglutination. H. Zinsser and J. G. Hopkins, New York.
17 *Adult Tertian Malarial Parasites Attached to Peripheral Corpuscular Mounds. Extracellular Relation of Parasites to Red Corpuscles. M. R. Lawson, New London, Conn.
18 *Influence of Digitalis on T Wave of Human Electrocardiogram. A. E. Cohn, F. R. Fraser and R. A. Jamieson, New York.
19 *Effect of Sensitization on Development of Lesions of Experimental Pneumonia in Rabbit. M. B. Kirkbride, Albany, N. Y.
20 Visual Cortex, Its Localization, Histologic Structure and Physiologic Function. E. B. Funkhouser, Trenton, N. J.
21 *Pathogenic Properties of Bacillus Proteus. W. P. Larson and E. T. Bell, Minneapolis.

12. **Barlow's Disease Experimentally Produced.**—Pronounced cases of Barlow's disease were produced by Ingier in the fetus as early as ten to fifteen days after the commencement of dieting pregnant guinea-pigs with oats and water. There are wide individual variations. The scorbutic changes in the skeleton are greatest in the earlier embryonic stages. The fetuses of that period, with practically no exceptions, die and show marked traces of impeded growth. Fetuses from the later period of pregnancy are born alive, and apparently fully developed, with comparatively slight changes in the osseous system. Even a short extension of the period of extra-uterine dieting on milk from scorbutic mothers and later on oats and water is sufficient to change the latent scurvy into a highly pronounced case. The fetus cannot be kept alive longer than the adult animal, about twenty-eight days, either by intra-uterine dieting alone or by combined intra-uterine and extra-uterine dieting. The mothers show signs of disease at an early period, and are more severely attacked than nonpregnant animals. Death also occurs comparatively often in the first period of gestation.

13. **Cultivation of Vaccine Virus.**—Vaccine virus freed from all associated bacteria by means of suitable disinfecting agents was propagated by Noguchi in a pure state in the testicles of rabbits and bulls. The virus cultivated in this manner is not only devoid of all bacteria, but appears capable of indefinite transfer from one animal to another. Sixty passages in rabbits of a pure strain have been made within one year. Several transfers from testicle to testicle are required to bring about accurate adaptation of the virus to the testicular parenchyma, so that continued propagation in this way can be certainly secured. During the first transfers from testicle to testicle the activity of the virus may be less than the original skin specimen from which the pure strain was derived; but as the transfers proceed the activity rises until, when the adaptation is complete, the activity of the testicular equals that of the skin strain. The multiplication of the virus within the testicle is maximum on the fourth or fifth day after inoculation; the quantity of virus remains about stationary until the eighth day, when diminution begins. At the expiration of five weeks no more virus could be dected in the testicle.

The vaccinal processes in the skin, cornea and testicle of rabbits are practically identical whether the virus employed for the inoculation has been the original skin strain or the pure testicular strain; and the skin lesions produced in the calf by means of the two strains are also identical.

Human beings react to the pure testicular strain of vaccine virus in an entirely typical manner. In the case both of original vaccination and revaccination the vaccinal effects cannot be distinguished from those arising from uncomplicated skin virus. Pure strains of testicular virus are readily produced, and once secured they may be propagated in a pure state in rabbits or bulls by the method described, without difficulty and with economy. The pure strains thus obtained should supply an ideal form of virus for employment in the vaccination of human beings.

14. **Transplantation of Tumors to Foreign Species.**—By feeding to rats the tissue of the mouse chondroma, Funk found that they are rendered more suitable as hosts for the growth. Using this method rats have been inoculated successfully with the mouse tumor, and it has been transferred to three successive series of these animals.

15. **Effect of Arsenic Compounds on Rous Chicken Sarcoma.**—Arsenic and arsenious acids, cacodylic acid, atoxyl and neosalvarson failed to influence markedly the growth of the Rous chicken sarcoma.

16. **Antibody Formation.**—It is shown by Zinsser and Hopkins that the serum of rabbits treated with emulsions of *Spirochaeta pallida* contains agglutination substances.

17. **Adult Tertian Malarial Parasites.**—It is claimed by Lawson that the malarial parasite is extracellular throughout its entire life cycle; that is, when it is not free in the blood serum, it is attached to the external surface of the red corpuscle. Adult parasites follow the same procedure in attaching themselves to the outer surface of the red corpuscles, as do the young parasites. Adult parasites are most frequently seen attached to surface corpuscular mounds. Corpuscular mounds projecting at the periphery of the red corpuscles and encircled by the pseudopodia of adult parasites, are proof positive of the extracellular relation of the adult parasite to the red corpuscle. Adult parasites attached to peripheral corpuscular mounds are only found in appreciable numbers when the red corpuscles are not badly damaged, so that the mounds show more or less hemoglobin content. The nuclei or protoplasm of adult parasites extending beyond the periphery of the red corpuscles is additional evidence of the extracellular relation of the parasites to the red corpuscle.

18. **Influence of Digitalis on Human Electrocardiogram.**—It is shown in this investigation that digitalis, administered orally to patients, can modify the T wave in the electrocardiogram. When the T wave in the initial curve is directed upward, the first change noticed is a lowering and the final change is an inversion of the wave. It is not only the wave itself, but that portion of the curve between the end of R and the end of T which is involved. Instances in which the initial T waves have other than upright forms are described and their behavior under the influence of digitalis has been indicated. This influence of digitalis on the T wave may be detected in thirty-six to forty-eight hours after the administration of digitalis has commenced; it may persist as long as twenty-two days after the administration has been stopped. Instances in which it persisted only five days have been encountered. The unexpected length of duration of the sign probably explains why a second treatment with digitalis requires a smaller amount of the drug to produce the same effect than the first.

19. **Experimental Pneumonia in Rabbit.**—Kirkbride's study would seem to give some ground for the view that while in pneumonia a hypersensitive condition probably takes some part in the inception of the infection, the subsequent development of the diffuse exudative reaction in the lung is not directly due to an acquired hypersusceptibility, but to intrinsic qualities possessed by the pneumococcus itself.

21. **Pathogenic Properties of Bacillus Proteus.**—The first proteus strain with which Larson and Bell experimented was isolated from a laparotomy wound in a case which subsequently terminated fatally. The proteus was repeatedly isolated from this patient in pure culture. The second strain was isolated from a severe eye infection following a cataract operation. A third strain was isolated from an infection of the finger, believed to have been contracted at a necropsy. A fourth was isolated from the heart's blood in a case in which the patient had died from peritonitis following a gunshot wound of the intestines. The fifth strain was from a patient with gangrene of the lung. These organisms all proved to be pathogenic for rabbits. All cultures obtained from sources other than human infections were nonpathogenic for the laboratory animals. A nonpathogenic culture may be made pathogenic by the use of aggressins or by inoculation into the anterior chamber of the eye. Proteus cultures lose their virulence rapidly when grown on artificial mediums. The lesions produced in animals are either simple abscesses, proliferative lesions, or a mixed exudative and proliferative lesion. The proliferative lesions consist mainly of epithelioid cells apparently of connective tissue origin. No giant cells of the Langhans type are present. The histologic type of the lesion does not depend on the strain employed. Neither does it bear any relation to the clinical severity of the case. The ability to produce the characteristic lesions has no necessary connection with the toxicity of the bacteria. The authors suggest that the proteus bacteria probably play a more important part in human pathology than is generally believed.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 22, I, No. 2838, pp. 877-916

1 *Treatment of Toxemia of Later Pregnancy; Report of Cases. J. Byers.
2 Dressing Station in France. G. R. Ward.
3 Some Infections of Tonsils. F. C. Pybus.
4 *Successful Sterlization of Skin with Tincture of Iodin. J. L. Stretton.
5 Typhus in Palestine, 1913 to 1914. C. H. Corbett.
6 Admission of Men with Glasses into Army. A. A. Bradburne.

1. **Treatment of Toxemia of Later Pregnancy.**—Byers emphasizes that every effort should be made to relieve the kidneys by getting the skin and bowels to act and by the administration of a simple nonnitrogenous diet. If there be headache or edema the patient, in addition, should be kept in bed and should have hot baths, free purgation and a milk diet; and if the state of affairs becomes more severe, warm saline lavage of the stomach and intestines is useful. In the nephritic cases, if in spite of this method of management the patients get worse, labor should be induced. One of the most important points emphasized is that a pregnant woman's urine must be analyzed once a month during the first six months of gestation, and at least once a fortnight after that period. Since adopting this routine method, Byers has not had in private practice during the past fifteen years a single case of eclampsia, as prompt measures taken when an examination of the urine showed any considerable amount of albumin (under these circumstances a catheter specimen should always be obtained), and with it any diminution in urea and nitrogen output, warded off all risk of convulsions and coma.

4. **Sterilization of Skin with Iodin.**—Stretton claims to have been the originator of this procedure, which he first described Aug. 14, 1909. He has now used the method with satisfaction in upward of 3,000 cases, and has never seen any dermatitis result from the use of the tincture of iodin. There is sometimes a limited amount of desquamation. The solution he originally used was the tincture of iodin (B. P.). It is prepared by dissolving 2.5 per cent. of iodin and 2.5 per cent. of potassium iodid in rectified spirit. In an endeavor to save the funds of the hospital he tried a solution of the same strength in methylated spirit, but soon found that it produced so much irritation and lacrymation that he was obliged to resume the original compound. He now uses the *tincture in the theater and a similar solution made with* methylated spirit in the wards.

Lancet, London

May 22, I, 4786, pp. 1065-1112

7 *Some Infections of Tonsils. F. C. Pybus.
8 Treatment of Septic Wounds. A. M. Sheild.
9 *Heart Perfusion with Excretory Toxins. D. T. Barry.
10 Influence of Injections of Contratoxin No. 4 (Mehnarto) on Content of Opsonins in Blood Serum of Tuberculous Patients. R. T. Hewlett and L. Rajchman.
11 Progress in Treatment of Cataract in India. H. Smith.
12 *Two Extraordinary Cases of Liver Abscess. C. B. Pasley.
13 Cerebrospinal Fever and Sphenoidal Sinus. D. Embleton and E. A. Peters.

7. **Some Infections of Tonsils.**—The principles to be adopted in the treatment of tonsillar disease are summed up by Pybus as follows: So far as the individual is concerned, when the symptoms are mainly or entirely mechanical and fail to subside in three months after removal of any source of infection, partial removal may suffice. Tonsillotomy, however, has this disadvantage, the basal portion of the tonsil may enlarge and again cause symptoms. In addition to this, many hypertrophied tonsils, so far as can be ascertained on inspection, do not appear to be grossly infected. In those cases which are grossly infected the basal portion, often the most diseased, is left behind and may commence to give trouble, especially if some of the lacunae become partially or entirely sealed up in the process of healing. When infec-

tive symptoms predominate in the tonsil itself, such as acute tonsillitis or chronic lacuna infection, or when the tonsils are in addition enlarged, any source of infection must be removed, especially carious teeth. Nasal breathing must be reestablished, and the case watched to see the effect of the treatment. In cases in which the tonsil is too severely affected to be capable of recovery, as judged by the recurrence of symptoms and the failure of the above measures, then total removal is indicated.

For lymphatic gland infections, in which tuberculosis is suspected, tonsillectomy is indicated; the course of the glandular enlargement determines whether this also may require operation. In pyogenic infections of the glands the tonsil must be dealt with when the acute lymphadenitis has subsided or been operated on if suppuration has supervened. Chronic glandular enlargement of the mild or moderate degree is so frequently encountered in hypertrophied tonsils that when the tonsil recovers its normal character the glands subside also. It should be a rule that no tonsil should be removed when acutely inflamed. For more distant infections, when the tonsil is suspected of being the focus, removal is indicated when the general condition is satisfactory. The maintenance of nasal respiration, the prevention of dental caries and the proper supply of food in sufficient quality and quantity will greatly diminish the prevalence of this condition. The provision of a cleaner air supply and the prevention of infection by milk are measures needing attention.

9. **Heart Perfusion with Excretory Toxins.**—The heart is exposed to the action of certain excretory toxins of the urine and feces when the mechanism of their expulsion is defective, or it may be, to these toxins of their precursors normally on their way to elimination. This action was tested by Barry by perfusion of the toad's heart. The inferior vena cava below the liver was isolated and a small cannula inserted, communicating with three perfusion bottles; one contained freshly prepared Ringer's solution, the second a mixture of human urine and the third fecal extract made with Ringer's solution. Strengths of 10 and 15 per cent. were tried. The aorta was cut across to provide a free exit of the fluid. The toxicity of these solutions is greatly diminished by boiling and by allowing them to stand for a few days.

The first toxic effect is exhibited by the ventricle. A 10 per cent. urine solution in a few seconds brings about cessation of this chamber in a state of tonus. The auricular beat is increased in force, due in part, at any rate, to increased tension; there was no previous perfusion. Recovery with Ringer's solution is rapid, though the ventricle is somewhat irregular for a time. Fecal extract shows a similar result. There seems to be a certain degree of tolerance of, or immunity from, the toxins on their repeated use. This is exhibited by a slower onset of the effects and a diminution of the toxicity. A certain amount of antagonism seems to exist between these poisons, but the question has not been properly investigated. The a.-v. bundle seems to be the part most affected by the excretory toxins which depress its conductivity, at the same time that they affect somewhat the ventricular muscle as a whole. A marked difference in the mechanism of the two chambers is also demonstrated by their action. Irritability of ventricular muscle is completely lost only with strong solutions and is quickly recovered if the action be not too long continued. The nervous mechanism, except the accelerator fibers, seems to be unaffected by the weaker solutions.

12. **Two Extraordinary Cases of Liver Abscess.**—In the two cases cited by Pasley as worthy of record from the fact of the remarkable size of the abscesses, the patients were extremely emaciated and constitutionally extremely ill. They both recovered perfectly, thus showing that no liver abscess, however large and however ill their possessors may be, can be considered as hopeless. In one case the abdomen was found enormously distended, resembling closely the abdomen at full-term pregnancy. An enormous tumor was palpable, which gave the sensation of fluid under extreme pressure. It was slightly tender to touch. Absolute dulness extended from the pubic region up to and continuous with the hepatic area proper. The tumor extended equally into both umbilical regions laterally—in fact, it practically filled the abdominal cavity. The patient's general condition was extremely bad; he was wretchedly thin, weak and listless. There was absolutely no sign of jaundice and no bile in the urine. Blood examination showed slight leukocytosis. Examination of stools gave a negative result. A provisional diagnosis of liver abscess was made and operation decided on. The patient rapidly improved. No ameba were found in swabbings taken from the abscess cavity. The only medicine given during his illness was emetin administered daily by hypodermic injection. He received 1½ grains per day.

In the second case, on examination, an enormous tumor was found practically filling the entire abdomen. It gave the sensation, on palpation, of a sac containing fluid under very high pressure. So far as could be made out by external palpation the lower margin of the tumor was situated 1½ inches above the symphysis pubis. It extended laterally into each flank and seemed to originate from the liver. Examination of the blood showed a slight leukocytosis. Examination of the feces showed the presence of ankylostoma and ascaris ova. The patient's general condition was wretched. Pasley operated on him. His recovery was uneventful. He received one-half grain emetin hydrochlorid daily for three weeks by hypodermic injection.

Archives de Médecine des Enfants, Paris

May, XVIII, No. 5, pp. 237-292

14 Vaccine Therapy of Whooping-Cough. (La bactériologie et la thérapeutique de la coqueluche.) M. de Biehler.
15 Relations Between the Pulse and the Viscosity of the Blood in Children. (Le rapport sphygmo-viscosimétrique.) P. Gautier.
16 *Primary Tuberculosis Bacillemia in Infants. A. Jousset.

16. Summarized in Abstract 29, March 27, p. 1112.

Journal de Chirurgie, Paris

August, 1914, XIII, No. 2, pp. 145-240

17 *Treatment of Acute Diffuse Peritonitis. S. Mercadé.
18 Suppuration in Hand Spreads by Continuity or by the Lymph Vessels. (Pathogénie des phlegmons de la main.) L. Imbert.

17. **Acute Diffuse Peritonitis.**—Mercadé discusses in turn the treatment of the peritoneum after the inevitable laparotomy, the treatment of the general intoxication, treatment also of the paralysis of the bowel and stomach, and treatment of the heart weakness. To combat the general intoxication lavage of the blood is required, and this is best realized by saline solution given in the rectum by the drop method. Some prefer plain boiled water, others sea water; the latter seems to have a pronounced stimulating action, but does not promote diuresis so well as plain water. Solutions of sugar, he says, have little diuretic action, but are nourishing, stimulating and tonic. Schiassi advocates for the purpose a solution of sodium chlorid 6.5 parts; potassium chlorid, 0.3 part; fused calcium chlorid, 1 part; sodium bicarbonate, 0.5 part; glucose, 50 parts; alcohol, 15 parts, and distilled water, 1,000 parts.

Among the nine various measures that can be applied in treatment of paralysis of the bowel, he emphasizes the advantages of electric enemas. They seem especially indicated here to combat the dynamic ileus; they are harmless and if they prove effectual their action is prompt. They should be applied early, so as not to waste much time if they prove ineffectual after two or three applications. If the paralysis extends to the stomach, a retention stomach tube is advocated by Grosser and others, the tube, 4 or 8 mm. in diameter, passed through the nose. Sometimes as much as 4 or 5 liters of fluid are thus brought out of the stomach in the twenty-four hours, and fluids must be supplied in other ways to replace these amounts thus lost. In conclusion, Mercadé points out that we have thus quite a number of measures at our command for carrying a patient through acute general peritonitis, but too many must not be applied at once.

Presse Médicale, Paris

May 6, XXIII, No. 19, pp. 145-152

19 Improvised Extension Splint for Fractures of the Humerus. (Méthode simple de traitement des fractures de l'humérus par armes à feu.) L. Bérard.
20 *Wounds of Peripheral Nerves. (Les lésions traumatiques des nerfs. Considérations opératoires.) L. Imbert.
21 Laboratory Tests for Cholera. L. Lagane.
22 Nomenclature of Bacteria. H. Coupin.
23 Extraction of Projectile Under Control by Roentgen Rays. Lobligeo's.

May 13, No. 21, pp. 161-168

24 *White Spots in the Mouth Usually a Sign of Syphilis. (Les taches blanches de la muqueuse jugale et commissurale, dites "plaques de fumeur," fonction de syphilis.) L. Landouzy.
25 Splint in Treatment of Radial Paralysis. T. Tuffier.
26 *Peritoneal Complications of Typhoid. M. Villaret.

20. **Wounds of Peripheral Nerves.**—Imbert comments on the number of operations now required for wounds of this kind as one of the surprises of the war. He is stationed at Marseilles, and has had to devote three or four mornings a week to operations on peripheral nerves. He does not operate on the nerve until the wound has entirely healed, but then permits no further delay. The study of each case requires the cooperation of a neurologist and histologist with the surgeon. When this is the case the danger of the operation is minimal while the functional outcome is often extremely gratifying.

24. **"Smoker's Patches" in the Mouth.**—Landouzy makes a practice of examining the mouth for the whitish lines or triangular patch on the mucosa extending back from the juncture of the lips toward the first molar known as smoker's commissural patches. He has found them exclusively in syphilitics; the tobacco is merely the local irritant causing the patch to develop in the predisposed. He has found them in women, but never in any except those married to syphilitics or with a history of personal syphilis. Landouzy has been preaching for twenty years the extraordinary, the unbelievable frequency of syphilis, and has found these smoker's patches often the only clue. He examines the mouth of every adult patient, man or woman, and has found these patches on the inside of the cheeks almost constantly in syphilitic smokers, and with extreme frequency in nonsmoking syphilitics in the third phase of the disease, and also in syphilitic women. The patches are liable to retrogress under mercury and iodid, although the smokers make no change in their smoking habits. Since the introduction of the Wassermann test, he applies it regularly to all patients showing these stripes or patches in the mouth. Of 164 syphilitics, the Wassermann was strongly positive in 81 of the 131 showing the patches. In another group of 72 men and 12 women in the third stage of syphilis, 52 of the men and 4 of the women had white patches, and 39 of these men and 2 of the women responded positively to the Wassermann test. He found the commissural leukoplakia also in 15 of 17 young syphilitic soldiers recently encountered; the Wassermann was positive in 9. In short, Landouzy regards these "smoker's patches" as pathognomonic, and as instructive as the Wassermann reaction, while their presence can be determined by merely a glance. He adds that the number of women in whom he has found them now total 15.

26. **Peritoneal Complications of Typhoid.**—Villaret states that perforation has occurred in only about 1.5 per cent. of the 600 cases of typhoid among soldiers in the hospital in his charge, but that all the other possible immediate complications of typhoid were numerous and grave. A purulent otitis or parotitis seemed often to serve as a spontaneous fixation abscess, and hastened recovery. Unless perforation had actually occurred, medical measures brought the men through in 97 per cent. of the cases showing a reaction on the part of the peritoneum. When signs of such a reaction develop, absolute repose and absolutely nothing by the mouth for several days are indicated; the mouth can be frequently rinsed out, and that is all. Ice to the abdomen and over the heart was an important aid in the cure, he is convinced, as also subcutaneous injections of 0.5 or 1 c.c. of a 1:1,000 solution of epinephrin or of 300 or 500 c.c. of saline containing epinephrin. The great value of these injections whenever cardiovascular or peritoneal symptoms became apparent was demonstrated most effectually in the aggravation of conditions throughout the wards when the supply of epinephrin ran out. A tendency to collapse was combated with camphorated oil plus ether, and the septicemia with some colloidal silver preparation subcutaneously, and an artificial fixation abscess. These measures cured 60 per cent. of the men with unmistakable peritonitis, and 97 per cent. of those with a peritoneal reaction which did not progress to actual inflammation.

Berliner klinische Wochenschrift

May 17, LII, No. 20, pp. 509-536

27 *Angina Pectoris. H. Kohn.
28 *Heart Disturbances in War. (Herzstörungen bei Kriegsteilnehmern.) S. Korach.
29 *Vagotony. W. Lublinski.
30 Scientific Management in Factories, Etc., from Psychologic Standpoint. (Zur Psychologie des Wirtschaftslebens.) G. Rosenfeld.
31 *War and Venereal Diseases. (Krieg und Geschlechtskrankheiten.) K. Touton. Commenced in No. 19.
32 Spa Treatment of the Wounded. (Resultate der Badebehandlung von Kriegsverwundeten und Erkrankten.) M. Porges.
33 Bath Trains. (Transportable Badeanstalten.) R. Rauch.

27. **Angina Pectoris.**—Kohn remarks that although Askanazy's work on the efficacy of theobromin in angina pectoris was published twenty years ago, yet few even now realize that theobromin can be relied on in angina pectoris almost as confidently as digitalis can be relied on when the heart action is rapid and weak. In treatment of a pronounced attack of angina pectoris, morphin relieves the pain and relaxes the spasmodic contraction of the coronary arteries. The dose must be 0.01 gm. at least, repeated if improvement does not soon follow. If one already knows the patient, 0.015 or 0.02 might be given to start with. If the pulse is slow or growing slower, stimulants should be injected at the same time, not waiting for signs of pulmonary edema to develop, repeating the camphor or caffein at need. Alcohol can also be used, with moist heat to the heart, placing the hands or feet in hot water, and giving amyl nitrite or nitroglycerin. To ward off attacks, theobromin has fully established its efficacy, he says, in treatment of the fundamental disturbance of which the angina pectoris is the manifestation. It is actually marvelous, he declares, to witness how the theobromin arrests the tendency to repeated mild partial or abortive attacks, the status anginosus as he calls it, in analogy with the status epilepticus. Patients long tormented day after day or night after night, are freed at once from their symptoms by the theobromin. He deplores the lack of general appreciation of the efficiency of theobromin in the treatment of the fundamental disturbances which are the bases for angina pectoris. The patient must stay in bed till all tendency to heart disturbances seems to have subsided; physical exercise should be discouraged and tobacco forbidden.

28. **Soldier's Heart.**—Korach remarks that in scarcely any other affection is it so difficult to decide whether the symptoms are of organic or purely nervous origin as in the heart disturbances encountered among the men in active service. And yet dire harm is likely to be wrought if treatment is applied on the wrong basis. The majority of the men he has seen at Hamburg who were sent back from the front on account of cardiovascular disturbances were suffering merely from purely nervous or functional cardiovascular derangement. Once entirely relieved from physical and emotional stress, the disturbances slowly right themselves in those with previously sound hearts. Differentiation is possible as a rule only with prolonged tranquil study of the case. Neurasthenics with extra systoles and very high blood pressure are not capable of service at the front.

29. **Vagotony.**—Lublinski goes over much the same ground covered by the two articles in The Journal, Jan. 31 and May 16, 1914, pp. 365 and 1535, and emphasizes that it is easy to recognize the "vagotoniker" at a glance by the ebb and flow of color in the face, the sudden perspiration, the

cool, damp and bluish hands, the lusterless eyes, the narrow pupil, the drooping corners of the mouth and the frequent swallowing. The abnormally irritable vagus system can be steadied and toned up with atropin, but this must be kept up perseveringly, even when good results are apparent, with ascending and declining dosage. Arsenic is useful also as a tonic for the nerves; it is especially advantageous in the form of an arsenical mineral water.

31. **War and Venereal Diseases.**—This long address was delivered before a mixed audience, and in conclusion Touton reiterated that the compulsory introduction of individual prophylactics is, next to sanification of prostitution, by far the most important means to avoid the weakening of the army from venereal diseases. He quotes a communication from Löb at Mannheim to the effect that under the influence of salvarsan endemic syphilis had been nearly stamped out in that city, as in other smaller centers, but that since the war began there has been an appreciable increase in the number of cases of syphilis. Touton advocates classing the effects of venereal diseases acquired during the war with other war disabilities entitling to a pension. The state insurance has abandoned its former practice of discriminating against such policy-holders, and he urges that soldiers and their families suffering from the results of these diseases should not be treated as criminals or sinners. In short, he concludes, the whole subject of venereal disease during the war should be regarded and managed from the strictly hygienic-medical standpoint, leaving all ethical and esthetic considerations in the background for the time being.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 13, XXVI, No. 38, pp. 593-608

34 *Aleukemic Lymphomatosis. (Le linfosi aleucemiche dal punto di vista clinico.) G. Ghedini.
35 Treatment of Tetanus in the Present War. A. Bertolini.

34. **Aleukemic Lymphosis.**—Ghedini recalls that lymphosis may develop with merely the signs and symptoms, local and general, of more or less severe anemia, with or without enlargement of the spleen, or as a hemorrhagic diathesis, an acute infection, simple lymphadenitis, sarcomatosis of the viscera or bones, or a nodular infiltrating and ulcerating dermatosis, or it may simulate syphilitic or tuberculous lesions. He reports a specimen case of each of these ten different types, and refers to typical examples of each on record. It is evident from his reasearch that in many cases of anemia, with splenomegaly, the underlying lymphomatosis has not been recognized. It may develop with the aleukemic blood picture, and the latter may vary widely from the classical type of lymphomatosis. The morbid blood picture should be studied from a broader standpoint than has hitherto been the case. It should be studied not merely as a disease of the blood-producing apparatus.

Policlinico, Rome

May, XXII, Surgical Section, No. 5, pp. 209-264

36 *Experimental Study of Fat Embolism. (Embolia grassosa.) M. Maccagno.
37 *False Appendicitis. L. Longo. Commenced in No. 4.

36. **Fat Embolism.**—Maccagno injected from 0.5 to 1.5 c.c. of olive oil into a vein in eleven rabbits and the next day killed and examined them to learn the fate of the oil. In others he repeated the injections and did not kill the animals until several days later. Study of the forty-two rabbits thus treated shows that the animals are unable to survive after intravenous injection of an amount equal to 1.06 per thousand of the weight. Also that the fat is only very slowly and defectively eliminated; he found it still present by the fortieth day. The most notable results and those most liable to prove fatal, are pulmonary edema, infarcts, embolism and heart disturbances. The experiences related teach the necessity for absolute repose in cases of fracture suggesting the possibility of fat embolism. Everything should be avoided that might in any way favor the passage of fat into the blood. When a fracture has not been reduced at the time the symptoms of fat embolism are observed, it is better to refrain from further intervention to reduce the fracture until the vessels have become thrombosed, as even a small quantity of fat in the blood vessels is likely to do much damage.

37. **Pseudoappendicitis.**—By this term Longo means any clinical picture which may be mistaken for that of appendicitis. The treatment of course differs for each, but the decision can be made, as a rule, only after the abdomen has been opened. It is especially necessary to examine the surrounding viscera when the appendicitis seems to have started in as a chronic affection and the appendix seems practically sound on direct examination. Besides this type of chronic appendicitis, there is a type in which the symptoms are many and varied, but the appendicitis never becomes fully developed; this group may be called abortive appendicitis. In other cases appendicitis is simulated by the disturbances resulting from Lane's kink; from Jackson's membranous pericolitis; mucomembranous enterocolitis with paroxysmal attacks resembling appendicitis, or the disturbances resulting from abnormal movability and dilatation of the cecum. He reports seven operative cases of this pseudoappendicitis, the operation revealing the appendix nearly or quite sound; in three cases the trouble was a simple membranous pericolitis, in the others the result of dilatation or abnormal movability of the cecum, or pericolitis with complications. The operations had been done in some of the cases on the diagnosis of ileus.

Hygiea, Stockholm

LXXVII, No. 8, pp. 401-464

38 *Present Status of Progressive Paralysis and Tabes. (Luesparalysläran i dess nuvarande läge.) V. Wigert.
39 Case of Erythema with Intense Tuberculin Skin Reaction. K. Frumerie.

38. **Present Status of Paralysis and Tabes.**—Wigert gives tables from the literature showing the proportion of cases of syphilis in which tabes or general paralysis had developed, classified according to the treatment that had been given. It is much to be regretted that the statistics cannot be compared with each other, as the reports vary so widely with respect to numerous points. It is high time, he declares, for compilation of statistics on a uniform basis in order to learn the exact conditions which favor or render impossible the development of tabes and general paralysis later. Cases should be classified in groups with like clinical course and unlike treatment, and also in groups with like treatment and unlike course of the disease. No such compilation is available at present. Certain statistics seem to indicate that treatment actually shortens the interval between infection and the appearance of paralysis or tabes, and this question deserves intensive study. Only one fact seems to stand out as established by the records to date, he remarks, that there is no evidence on hand at present that the usual mercurial treatment of fifteen and twenty years ago had any efficacy as a relative protection against paralysis and tabes. About half the article is devoted to a discussion of the existence of a syphilitic virus with a special affinity for nerve tissue.

Ugeskrift for Læger, Copenhagen

May 20, LXXVII, No. 20, pp. 781-824

40 *Physiology and Pathology of Sports and Competitive Athletics. K. Secher.
41 Medicinal Rash. (Tilfaelde af Atophanexanthem.) A. Kissmeyer.

40. **Competitive Athletics.**—Secher has not found much evidence of harm done by sports and athletics in Denmark, but he thinks that the authorities should interfere to enforce a medical examination before any competitive event of the kind. A number of athletic associations have already provided for this as a routine measure. All athletics should have some medical supervision. By this means it would be possible to keep out of strenuous competitive events those not equal to this strain, although under ordinary conditions they can keep up their athletic work without harm.

Miscellany

Cystitis in Children

R. Fischl is professor of children's diseases at the University of Prague, and in a recent number of the *Prager medizinische Wochenschrift* he reviews his experiences with cystitis in children, especially the cases in which he has been called in consultation and the attending physician had failed to diagnose the bladder trouble. In his service at Prague, every girl child suspected of urinary trouble is catheterized, and boy babies wear a special receptacle to collect the urine. By this systematic investigation, he has found that cystitis is comparatively rare. Only twenty-six cases were found among the 15,000 children examined in the course of twelve years, and in the group were no infants less than a year old. He has also encountered fifteen cases in his private practice, a total of forty-one cases. Only five of the patients were boys. In twelve cases, the family had recognized that the bladder was the seat of the trouble, but in over 50 per cent. of the cases, this had not been suspected. One child of 8 was supposed to have typhoid, as there had been high continuous fever for a week with moderate diarrhea. There was no agglutination, and the only signs of trouble were slight enlargement of the spleen. The urine at first had contained a little albumin, and this gave the clue to the cystitis; under treatment for this the child promptly recovered. In another case of apparent typhoid, the child of 9 had been taken suddenly, after a long walk on a hot day, with high fever and prostration soon accompanied by diarrhea and cough. The aspect and symptoms suggested typhoid except that there was no agglutination; the sudden onset was also unlike typhoid. The discovery of a vulvovaginitis suggested the possibility of bladder trouble, the long walk having possibly contributed to spread the infection to the bladder. Treatment on this assumption soon cured the child.

Another young child had been treated for supposed typhoid for weeks without benefit, while the strict dieting had emaciated the little patient. The fever had been continuous at first and then irregularly remittent. Called in consultation, Fischl noticed the peculiar odor of the urine at once, and the microscope showed evidences of cystopyelitis. It had developed after an attack of diarrhea. As it had not been suspected for so many weeks, it had run into a chronic phase quite refractory to persevering local measures plus hexamethylenamin internally. These brought the temperature down to normal and the general condition improved, but the urine kept turbid and of a putrid odor while the child had the tint of anemia. The urine finally became normal after one injection of an autogenous colon bacillus vaccine, and there has been no relapse to date.

Left untreated too long, cystitis may drag along for years, or lie latent until roused by pregnancy or other period of stress. Fischl warns that urates in the urine are liable to simulate the cloudiness of cystitic urine. Powder used to dust the genitals of infants may also get into the urine and prove misleading. In one case a bright 5-year-old boy became incontinent and wet his clothes both day and night. The enuresis was not affected by the various methods of treatment applied in turn. No one thought of examining the urine under the microscope. When finally this was done, findings suggestive of cystitis pointed the way to a prompt and speedy cure of both the cystitis and the enuresis.

Fischl gives hexamethylenamin internally in doses of at least 0.5 gm. per day for young infants, and keeps it up until the urine is normal; a week usually answers the purpose. If the desired result is not attained in one or two weeks, it is useless to keep it up longer, and local measures should be applied. He begins with a weak solution of potassium permanganate. If this proves ineffectual, he changes to a 1 : 5,000 silver nitrate solution. The fresh urine with cystitis is so often neutral that there is no reason for treating with alkalies, as Thomson advocates.

Effect of Pasteurization on the Cream Line

Complaints were made to the New York City Board of Health, following the enforcement of certain regulations concerning the temperature at which milk should be pasteurized by milk distributors, that the cream did not properly rise or separate in the pasteurized product and show a distinct line between the cream and the milk. In order to determine the effect of pasteurization at different temperatures and for different periods, a series of tests was instituted under the supervision of the New York board at the different pasteurizing plants, using different methods and different apparatus, and the results are set forth in Reprint 27 of the board by Charles H. Kilbourne, supervising inspector of foods. Details of the tests, the temperatures, apparatus, time and other conditions are given in detail, and some obscure and as yet not entirely explainable phenomena are described in respect to the cream line in the pasteurizing process. The results, however, are summarized by Kilbourne as follows: All tests indicated that when the milk is cleaned by a centrifugal clarifier, the volume of cream in the milk is reduced from 2 to 3 per cent. The volume of cream in bottled milk is influenced by (1) the temperature to which the milk is heated; (2) the length of time the milk is held at the high temperature; (3) the temperature of the heating medium with which the milk comes in contact during the heating process; (4) the clarification of the milk; (5) the type of apparatus used in treating the milk, and (6) the amount of agitation to which the milk is subjected, especially while hot. The last factor is said to have considerable influence, and in one instance in which the cream line was considerably reduced in the process, the experiment was made of reducing the speed of the agitator which kept the hot milk in motion, when it was found that the cream line remained normal. It was also found that in the processes in which there was most agitation or pumping of the hot milk, most difficulty with the cream line was experienced. Other factors which have an influence are said to be the age of the milk before pasteurization, the grade of cows producing the milk, and the freezing or nonfreezing of the milk before being treated. It is stated that milk may be heated to 145 F. for thirty minutes without producing any injurious effect on the cream line.

Sanitary Works in Argentina

The manner in which the problems of water supply and sanitation have been met in Argentina, particularly in Buenos Aires, is described in *Commerce Reports* for April 14. Buenos Aires is said to present points of resemblance to Chicago. Both are decidedly modern cities which received their greatest accessions of population in recent years, and each is situated on a large body of fresh water. In respect to water supply and drainage, Buenos Aires has the advantage over the northern city in that the waters of the Rio de la Plata move toward the sea, and that the winters in Buenos Aires are never so cold that the danger of frozen water pipes and mains needs to be reckoned with.

The scientific study of water supply and drainage for Buenos Aires dates from 1873, when the population was something over 200,000 (it is now over 1,500,000). The sanitary work now partly completed and partly still under construction is supposed to insure a proper drainage and water supply to meet the city's needs up to 1952, at which time it is prophesied that the population will be near to 6,000,000. The consumption of water allowed per inhabitant per day is 300 liters (nearly 80 gallons), an amount considerably above the rate of the actual present consumption.

While some of the water used in Buenos Aires is as yet obtained from driven wells, these are to be done away with and the entire city supplied with water from the Rio de la Plata. By means of sedimentation, coagulation and filtration, it has been found possible to purify the river water absolutely and render it suitable for all purposes.

Since Buenos Aires is situated on the edge of the river, with no natural elevation from which distribution of water to the city might be effected, it has been necessary to construct elevated distributing stations. Four new centers of distribution are planned. From a water tower in the river, an intake tunnel will conduct the water to the pumping stations on shore, whence it will pass, first to the decanting reservoirs, then to the filter beds, and thence to the gravity tanks and reserve tanks, from which a network of water mains will lead it to all parts of the city. The capacity of the tanks, compared with the amount of water consumed in one day, is much less than in New York or London, owing to the high price of land in Buenos Aires and the lack of natural elevations, which have rendered the cost of such large tanks prohibitive. The use of the coagulation method has counterbalanced this difficulty, however, and provision has been made for a proper reserve of filtered water, so that the city will not suffer for water in case the filter beds and coagulation tanks should be temporarily out of service.

The sewage of Buenos Aires is discharged into the Rio de la Plata at a point far enough below the intake to preclude the possibility of contamination of the water supply.

The water supply and drainage of the federal district (Buenos Aires) is under the control of the National Department of Sanitation (Obras Sanitarias de la Nación) which may also, at the request of the provincial cities, undertake similar work on their behalf. This department is autonomous. being responsible only to the president of the republic, who, with the approval of the senate, appoints the members of its directorate, consisting of a president, a vice president and five other members who serve for a term of four years. This directorate is given liberal powers, both administrative and financial. It has the authority to nominate and discharge all subordinates and to raise money, when necessary, for constructive work, by means of loans secured by the property of the department. These loans are finally to be discharged from the income of the department, which is drawn in part from the national lottery and in part from monthly taxes on all houses which receive water and sewage service. These taxes consist of 3 per cent. on the rental value for the water and 2 per cent. for the sewage. This income is sufficient to meet amortization and interest payments and finally to wipe out the entire debt contracted for the work under process of construction.

The Death Rate in Berlin Last Year

The mortality in Berlin was a little higher in 1914 than in 1913; per thousand inhabitants, 14.54 per cent. died in 1914 to 13.48 in 1913. In this calculation, however, the great changes in the populace after the outbreak of the war must be borne in mind. The increase in the mortality for 1914 included 996 males and 592 females, but classifying the deaths by ages shows that the increase was mostly among infants or the aged. This grouping is evident also in the classification according to the causes of death. The increase, namely, is in catarrhal bowel troubles and diarrhea, measles and pertussis, while the figures for scarlet fever and diphtheria are about the same. There was a moderate increase in the mortality from pulmonary tuberculosis, which does not affect to such an extent the very young or the very old. The pneumonia mortality showed a considerable increase, mostly among the elderly. The number of deaths from senile debility also materially increased, as also the number of deaths from cancer.

The influence of the seasons is instructive. In 1914 the mortality in the winter and spring was above the average; from June to November it was moderate. It used to be the rule that the summer months had the highest mortality on account of the high death rate among infants in the heated term. But now the mortality among infants does not form such a large proportion of the total—partly owing to the influence of the declining birth rate—and hence it is not so important a factor in the general mortality.

During 1914, notwithstanding the unusual decline in the birth rate, the infant mortality was notably higher. There were 5,846 deaths among infants, 37,493 living children born in 1914 to 5,607 deaths, and 40,481 living children born in 1913. But even taking this into account, July, August and September, although they showed the highest death rate among infants, did not have so high a total mortality as the months of the winter and spring. The total rate in July was only 13.66 per thousand, the lowest month in the year. More than the heat of the summer, the inclement weather of the winter and early spring claimed more victims in 1914.

Opportunities for Graduate Work

An interesting sketch of medical impressions on a trip around the world was published recently by Dr. J. Eduque in the *Revista Filipina de Medicina y Cirujia* on his return from a tour for inspection of the clinics and hospitals of Europe and America, made under the auspices of the University of the Philippines. In conclusion Eduque summarizes his impressions in the advice to go to Austria to study pathology, diagnosis and specialties, to England for anatomy and physiology, to France for urology and to the United States for surgery. He urges the necessity for studying the language before leaving home, and strongly advocates the joining of the local medical association open to foreigners, as this provides numerous advantages in the way of opportunities and information. His sketch is republished in the *Prensa Medica* of Havana. He relates that the queen of Bulgaria had planned to come to America and bring several young women with her to study the system of trained nurses here as she had been much impressed with their work in the Red Cross units during the last Balkan War.

The Hospital for Industrial Diseases in Italy

The hospital and clinic for the exclusive study and treatment of the industrial diseases, at Milan, has just completed its fourth year of work. It is the first and to date the only institution of the kind for occupational diseases, and the postgraduate courses have attracted medical men from other countries. Prof. L. Devoto is director and is editor of the little monthly, *Lavoro*, published by the clinic, although antedating it by four years. The expense of running the hospital and clinic is $17,000 a year. The number of days of hospital treatment has averaged 18,720 per year. In April, as an average month, 228 persons were given treatment in the dispensary, including 98 women; and 16 men and 14 women were admitted to the hospital. Wassermann tests were applied in 43 cases, with positive findings in 15. Roentgen-ray examinations were made in 63 cases—all without charge. The institution has prepared sets of lantern slides which they sell for $4 a dozen. They portray various features of industrial diseases and means to recognize and avoid them, tables of statistics, etc., from various countries, and other data bearing on occupational disorders.

Biologic Diagnosis by Means of Intermediate Host

E. Brumpt is professor of parasitology in the medical school at São Paulo, Brazil, and he has recently worked out a method for diagnosis which he calls xenodiagnosis, from the Greek ξένος, host, as he utilizes the intermediate host of the parasite or some vicarious host for the cultivation of the parasite in question. He has applied the method to date mostly in cultivation of Chagas' trypanosome. A Brazilian leech was found convenient for the purpose; the trypanosomes taken up as it sucks blood multiply amazingly in the stomach. But for Chagas' disease, the true intermediary host is preferable. The bite of the bug in question, which is the host of Chagas' trypanosomes, is not painful, and consequently children do not object to let it be placed on them to bite and draw blood. It takes up from ten to five hundred times as much blood as could be examined with the microscope, and the bug, a large black insect with red markings, can then be set aside in a labeled tube and examined at leisure as the trypanosomes proliferate in its interior. Brumpt's communication is the leading article in the *Annaes Paulistas de Medicina*, 1914, iii, 97.

JOURNALS INDEXED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT JANUARY-JUNE, 1915

The following journals have been indexed in the Current Literature Department of THE JOURNAL during the past six months. Any of the foreign journals, except those starred, will be lent by THE JOURNAL to subscribers in the United States and to Fellows of the American Medical Association for a period not exceeding three days. Only one journal may be borrowed at a time. Requests for periodicals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic journals can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals indexed are accessible to the general practitioner, no matter where he may be located.

Albany Medical Annals. M. $2. 170 Washington Ave., Albany, N. Y.
American Journal of Anatomy. Bi-m. $5. 36th St. and Woodland Ave., Philadelphia.
American Journal of Diseases of Children. M. $3. American Medical Association, 535 N. Dearborn St., Chicago.
American Journal of Insanity. Q. $5. Johns Hopkins Press, Baltimore.
American Journal of the Medical Sciences. M. $5. Lea & Febiger, 706 Sansom St., Philadelphia.
American Journal of Obstetrics and Diseases of Women and Children. M. $5. Wood & Co., 51 Fifth Ave., New York.
American Journal of Orthopedic Surgery. Q. $3. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia.
American Journal of Physiology. M. $5. Johns Hopkins Medical School, Baltimore, Md.
American Journal of Public Health. M. $3. 755 Boylston St., Boston.
American Journal of Roentgenology. M. $5. 32 Adams Ave., West, Detroit.
American Journal of Tropical Diseases and Preventive Medicine. M. $2. P. O. Drawer 602, New Orleans, La.
Annales de gynécologie et d'obstétrique. M. 22 francs. Paris.
Annales de médicine. M. 23 francs. Paris.
Annals of Ophthalmology. Q. $4. Mermod-Jaccard Bldg., St. Louis.
*Annals of Otology, Rhinology and Laryngology. Q. $4. Mermod-Jaccard Bldg., St. Louis.
Annals of Surgery. M. $5. J. B. Lippincott Co., E. Washington Square, Philadelphia.
Annals of Tropical Medicine and Parasitology. Q. $5. Liverpool.
Archiv für Gynäkologie. Irregular. Price varies. Berlin.
*Archiv für Kinderheilkunde. Irregular. 15 marks. Stuttgart.
Archiv für klinische Chirurgie. Irregular. Price varies. Berlin.
Archiv für Verdauungs-Krankheiten. Bi-m. 24 marks. Berlin.
Archives of Diagnosis. Q. $1. 250 W. 73d St., New York.
Archives of Internal Medicine. M. $4. American Medical Association, 535 N. Dearborn St., Chicago.
*Archives des maladies de l'appareil digestif et de la nutrition. M. 14 francs. Paris.
Archives des maladies du cœur, des vaisseaux et du sang. M. 17 francs. Paris.
*Archives de médecine des enfants. M. 18 francs. Paris.
Archives mensuelles d'obstétrique et de gynécologie. M. 25 francs. Paris.
Archives of Ophthalmology. Bi-m. $5. G. P. Putnam's Sons, 27 W. 23d St., New York.
Archives of Pediatrics. M. $3. E. B. Treat & Co., 241 W. 23d St., New York.
Archives of Roentgen Ray. M. $4.50. London.
Arizona Medical Journal. M. $2. Phoenix, Ariz.
*Beiträge zur Geburtshilfe und Gynaekologie. Irregular. Price varies. Leipsic.
Beiträge zur Klinik der Tuberkulose. Irregular. 16 marks. Würzburg.
*Beiträge zur klinischen Chirurgie. M. Price varies. Tübingen.
Berliner klinische Wochenschrift. W. 24 marks. Berlin.
Boston Medical and Surgical Journal. W. $5. 126 Massachusetts Ave., Boston.
Brain: A Journal of Neurology. Irregular. $4. London.
Brazil Medico. W. 20 milreis. Rio de Janeiro.
Bristol Medico-Chirurgical Journal. Q. $3.
British Journal of Children's Diseases. M. $5. London.
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The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "T," Therapeutics; "Ml," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics; "ab," abstract; the star (*) indicates an "Original Article" in THE JOURNAL.

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The figures in parentheses refer to the paragraph, the number following to the page in THE JOURNAL.

ABDERHALDEN serodiagnosis, present status of, *1898

This reference is to an original article in THE JOURNAL, as shown both by the star and by the black-faced numerals indicating the page.

ACONITE in pneumonia, 1782

This reference, as indicated by the black-faced figures, is also in THE JOURNAL, and on turning to page 420 we find an answer to a question in the Department of Queries and Minor Notes.

ACID, uric, in blood, colorimetric determination of, (84) 1877

In this reference, the (84) indicates that the article is in the Current Literature Department and the fact that the page number is in black-faced type shows that the article is abstracted and discussed in THE JOURNAL. Turning to page 1877 we find (84) refers to an article by S. R. Benedict in the *Journal of Biological Chemistry,* April.

ABSCESS, brain, after blocking trigeminal nerve for removal of teeth, (97) 1690

The fact that in this last reference the page is given in ordinary type indicates that only the title of the article is given. Turning to page 1690 we find that the numeral (97) refers to a paper on that subject by F. Bannes which appeared in *Medizinische Klinik,* April 4.

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SOCIETIES

Acad.—Academy.
Am.—American.
A.—Association.
Conf.—Conference.
Cong.—Congress.
Conv.—Convention.
Internat.—International.
M.—Medical, Medicine.
Phar.—Pharmaceutical.
S.—Society.
Surg.—Surgical, Surgery, Surgeon.

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